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AMSTRAD PCW

8000 PLUS

8256•8512•9512

ISSUE 15 • DECEMBER 1987 • £1.50

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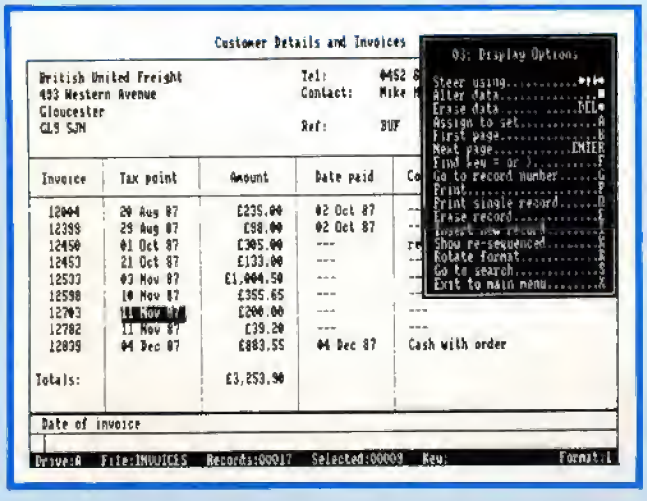

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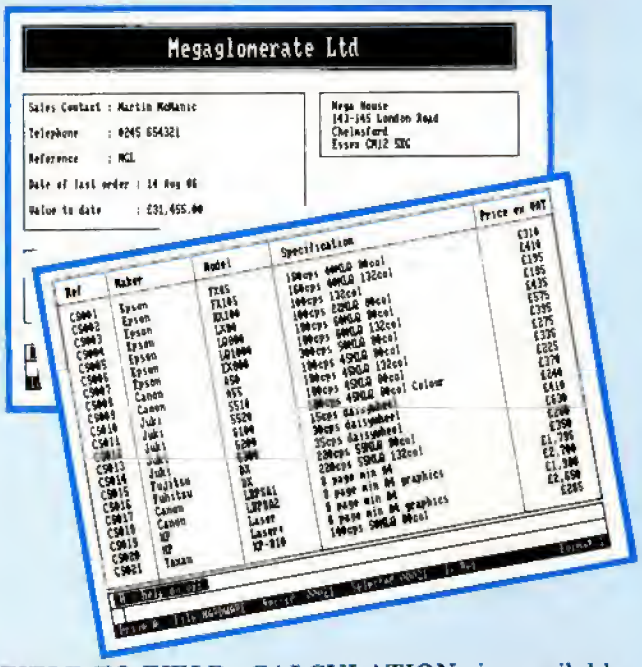

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Just fancy that

Does anyone know who the gentleman in this picture is? The one beside Alec Rae, that is?

The picture comes from a press release for Rombo Productions, whose 'Vidi PCW' video digitiser won the 1987 British Microcomputing 'Special Award'. Their PR photo quite clearly shows 8000 Plus's assistant editor, Alec Rae, respectfully averting his eyes from Elvis.

Rombo claim the pictures were taken from TV broadcasts, but unless Alec achieved fame unknown to him we're fairly sure that they have reused an image we left on their discs when we returned their digitiser after review.

A PROBLEM SHARED

I know very little about the machinations of the world of high finance, and the causal link between Ronald Reagan's deliberations on his trade deficit and the price of my Amstrad shares puzzles me.

However, I do know something about computers, and one particular post-stockmarket holocaust comment caught my eye. Apparently on the first day of October's share price collapse, a couple of hours before close of trading in New York the U.S. treasury ordered the computer systems to be shut down. Stockbroking firms use their computers to track the price, and should a downward trend appear the computer automatically issues an instruction to sell. Thus when the whole market dived, the computers began to instruct other computers to sell, which depressed prices further, and the whole thing got into a vicious circle and had to be abandoned.

People who have never used a computer have a touchingly naïve faith in them. 8000 Plus readers know better. Computers are only as clever as the people using them, and the downwards spiral that these automatic selling programs got into was not very clever at all. Any school computer science student would have spotted the potential trap, yet the $100,000 a year systems analysts on Wall Street didn't.

One day computers will be clever enough to make judgements on whether or not to sell shares, but any system based on knee-jerk reactions to price drops is anything but clever. Computer controlled systems are going to become more and more prevalent because they do offer such dramatic labour savings. However, for the time being it seems that human judgement is alive and kicking.

Ben Taylor

Questionnaire results

With great ceremony and scientific impartiality, we've picked the three lucky winners of the grand questionnaire prize draw. They are: Will Parfitt, London SE22; Rev. J.A.B. Mayne, Co. Down; Ian S. Goodhart, Stanmore. £25 vouchers good for our special offers pages are on their way with congratulations.

Thank you to the many hundreds of other readers who returned questionnaires, and we'd like to assure you that every single one was carefully read. Although many of you seem convinced there is no way we could improve further, we're sure you will see many new and interesting features in the future.

The most interesting section for us was the 'What magazines do you read?' question. Among the most mentioned were *Nursing Times*, *Marxism Today*, *Investors Chronicle*, *Rail Enthusiast* and *The Beano* (well, once). What a cosmopolitan lot you are.

Tale of two PCWs

Many letters to 8000 Plus end with a plaintive P.S. along the lines of, "Stick to the 8000s – forget the 9512", or alternatively, "Move with the times, forget the 8000s".

As we've said before, the fact is that the machines are virtually identical apart from a few go-faster stripes; most product releases and most of our general articles apply to both models of PCW.

However, there are a few packages specific to either the 8256/8512 or the 9512, usually where there is a heavy dependence on the printer. From now on all our reviews will carry an extra item in the product information line (where the price and supplier are given) which will say '8000s only', '9512 only' or, most commonly, 'All PCWs'.

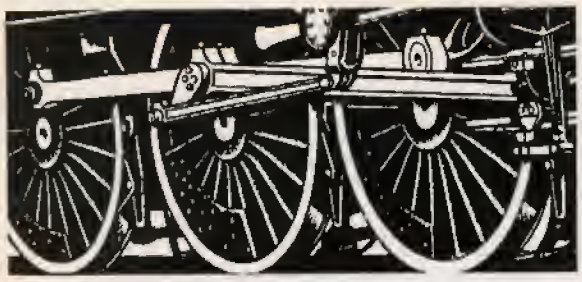
International fame

8000 Plus is privileged to have an international award-winning writer as a columnist. At the recent World Science Fiction Convention, David Langford scooped the awards (called 'Hugos') for 'Best Fan Writer' and on behalf of the fan magazine 'Ansible' that he edits, 'Best Fanzine'.

Langford himself is too modest to mention these accolades, but nevertheless has dropped enough heavy hints to the editor to make sure that we don't forget to mention it. Well done, Dave.

8000 PLUS

The January 8000 Plus will be out on Thursday December 17th. Make the New Year easy and subscribe!



More for your PCW with LOCOMOTIVE SOFTWARE

Since LocoScript 2 was launched we've been improving it and making it more versatile.

Now, we've released version 2.12 together with these new products.

If you haven't bought LocoScript 2 yet, now is the time to buy. Just read the magazines and reviews to see how good it is. The price is still just £19.95.

If you've already bought LocoScript 2 for your 8256/8512, you can upgrade to the latest version for just £5 *or get it free with any of these new products.*

If you have a PCW9512, buy any one of these add-on products and get the latest LocoScript 2 free!

For the 8256, 8512 and 9512

The Printer Character Sets Disc

If you use a different printer from the one built-in to your PCW, then you may need a Character Set tailored to your printer or printwheel. The Printer Character Sets Disc helps you prepare this. Printing # to get £ will be a thing of the past with your new character set. (For the 9512 this disc is combined with the extra printer drivers disc)

The Keyboards Disc

Previously, each different national version of LocoScript would only work with the equivalent national keyboard. Now, if you add the Keyboards Disc, you can mix and match the different versions of LocoScript and different keyboard layouts. You could, for example, use a French AZERTY keyboard with an English version of LocoScript 2.

For the 9512

The 9512 Printwheels Disc

There are many different printwheels available for the printer built into the PCW9512. If you want to use any one of these printwheels you'll need the matching printwheel table. Your PCW9512 comes with just two printwheel tables; the Printwheels disc contains them all! So if you want to use an exotic printwheel (say a French wheel on an English PCW), purchase the 9512 Printwheels Disc for LocoScript 2 to use the printwheel to its full extent.

The 9512 Printer Drivers and Character Sets Disc

The PCW9512 can be used with a variety of printers in addition to the built-in daisywheel printer, so for example you can add a fast printer for drafts.For LocoScript 2 to operate these printers correctly, you'll need some extra software called a printer driver. There are some printer drivers supplied on the LocoScript disc with your PCW, but this disc contains printer drivers to support a far wider range of printers.

For the 8256

The Locomotive 8256 Memory Upgrade

LocoScript 2 stretches your PCW8256 almost to the limit – the more so if you use LocoSpell or LocoMail! The Locomotive Memory Upgrade is a kit of "chips" which boosts the memory of your 8256 to 512K (the same as in a PCW8512). With this fitted, you can copy discs in one go, you'll rarely run out of space on the M drive when editing and you'll be able to use the huge 78,000 word LocoSpell dictionary in drive M. The kit comes with full instructions and even a practice chip for you to make your mistakes on! Unless you have a very early PCW, no soldering is required.

To: Katy Buchan, Locomotive Systems, Allen Court, Dorking, Surrey RH4 1YL.
Phone: (0306) 887902

☐ I enclose a cheque payable to Locomotive Systems Limited

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Please send me the following products:

FOR THE PCW8256/8512

__	LocoScript 2 (include old LocoSpell/LocoMail master discs for free upgrade)	£19.95
__	Upgrade to version 2.12 (include old master disc with this order)	£5.00
__	FREE Upgrade to 2.12 (only available with Keyboards or Char Sets disc) (include old master disc with this order)	
__	Keyboards Disc (requires LocoScript 2 version 2.12)	£14.95
__	Printer Character Sets Disc (requires LocoScript 2 version 2.12) (Note that this product was previously called the Printer Constructor Disc)	£14.95
__	Locomotive 8256 Memory Upgrade	£24.95

FOR THE PCW9512

__	9512 Keyboards Disc	£14.95
__	9512 Printwheels Disc	£14.95
__	9512 Printer Drivers and Character Sets Disc	£14.95
	TOTAL	£___.___

IT'S THE PORTABLE PCW!

In a move more effectively concealed than many product launches, Nabitchi Computing of Liverpool have announced a portable version of the PCW8256. At last it seems that you can take LocoScript with you into the garden or onto the train.

What Nabitchi have done is to take the insides of an 8256 and rehouse them in a custom-designed case with a new power supply and screen. The new display is a 4" diagonal TV tube which can show the full 90 columns by 32 rows. The portable PCW will cost £399+VAT.

Also included is the 8256's standard 3" disc drive. It will, of course, run all PCW software unchanged, including LocoScript. The keyboard is a standard 8256 keyboard, as is the printer. Most of the time you won't need to carry the printer around with you, but should you have to then the portable can drive that too.

One neat innovation is the addition of a clock. You can arrange to turn on the power to the PCW at a set time, and if you have a suitable start-of-day disc with a PROFILE.SUB file the machine would then automatically run any software you wanted.

The whole unit – screen, disc drive and printer – runs off rechargeable batteries which are claimed to last for up to 4 hours continuous use. It can also be run off the mains directly, during which time the batteries recharge themselves. The unit measures up at 30 by 20 by 13 cm, and is said to be significantly lighter than the normal 8256.

But the Nabitchi portable isn't just a portable. Because it is a converted 8256, when you buy it you also get the unused full-size display screen left over from the conversion. When working at home you can connect the machine up to this and ease possible eyestrain by use of the larger screen.

For £199+VAT Nabitchi will convert current 8256s, putting them into the new case and returning the portable version plus standard screen for home use.

At the time of going to press we hadn't seen the Nabitchi portable in action. David Rathbone, ideas man and driving force behind Nabitchi, is very confident of its future, revealing: "We were tempted at first to try to build our own PCW clone from scratch, but of course you can't out-Amstrad Amstrad on price. This conversion process avoids all the hassles of relicensing LocoScript and CP/M." He expects the first deliveries of the new machine in early December. Details from Nabitchi on 051-708 8775.

▲ Amstrad's new PPC portable computer

And from Amstrad...

It's obviously the month of the portable computer. Amstrad's newest product is a portable IBM PC compatible, christened the PPC.

For those who know and care about the IBM PC world, here are the gory details: the basic PPC costs £399+VAT and has 512k memory, one 3½" disc drive, a full size IBM AT enhanced keyboard and a 80x25 row LCD screen. For an extra £100 you can get a second disc drive *or* a built-in modem and full 640k memory. The top range model at £599+VAT has twin drives *and* modem.

Tipping the scales at six kilos, it isn't a lap-top machine. And at 43 by 23 by 10 cm you would need a pretty big briefcase. The PPC won't be available in Britain until mid-January.

At the same time as launching the PPC, Alan Sugar was hinting that there might be a portable PCW on the way. Answering questions at the press conference Sugar said that the Amstrad were not considering producing a portable printer for the new machine but that they were "looking at" a plan to produce a portable PCW which would include a printer.

Say it with LISP

A PCW version of the computer language LISP has been developed by programing specialists HiSoft (0525 718181). LISP is widely used in the area of Artificial Intelligence programming, and HiSoft's version is an interpreter with program editor. HiSoft LISP is based on the Common LISP standard, but includes extra commands to make best use of the PCW's features.

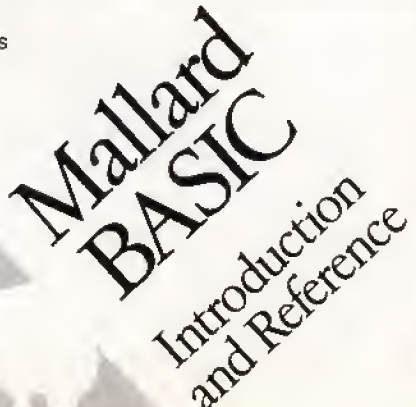
The LISP system costs £39.95, but if you don't already know the language you might be interested in paying £10 extra to get a tutorial book too. For £49.95, HiSoft are bundling *Looking at LISP*, by Open University lecturer Tony Hasseмer, which they say ties in well with their software.

New BASIC manual

A common complaint from PCW owners is that Mallard BASIC is not covered adequately in the manuals that come with the machine. Now help is at hand in the shape of a new manual from Locomotive software.

The new version is a complete rewrite of the manual that Amstrad currently sell. It is 430 pages long, split into a reference section and a much-enlarged tutorial. New sections cover the Jetsam filing system in detail, GSX graphics and using machine code with BASIC.

Locomotive are the company that wrote Mallard BASIC, so they ought to know a thing or two about it. The new manual costs is £9.95, from Locomotive on 0306 887902.



Light-pen wars

Swansea light-pen manufacturers Trojan (0792 205491) have launched an aggressive attack on the graphics market with a PCW light-pen and graphics software for only £29.95.

Trojan claim their art package has all the facilities you need for a free-hand drawing package, and a number of features which they say approach the realms of desk top publishing (doesn't everything these days?) with a wide range of type sizes.

Trojan have considerable experience of the light pen market being the manufacturers of the 'LP1' light pen sold by Amstrad for their CPC machines. By doing their own manufacturing and programming Trojan have managed to come up with a product at a price that must cause a considerable amount of interest.

9512 Daisywheel problems

PCW 9512 owners who want to use even the simplest foreign accents in text are having problems. The standard wheel that comes with the 9512 has no accents on it, but the LocoScript word processing software is actually pre-set up to support a suitable alternative wheel with all the accents.

However, this 'Swiss-French' print wheel, as it is called, seems to be virtually unobtainable. Retailers like Dixons have never heard of them, and Amstrad are referring customer enquiries to their official daisywheel distributors, Sternstat.

John Wyse, marketing manager of Sternstat, confirmed that the Swiss-French wheel was not being generally distributed to the trade. "We are only supplying the foreign character wheels singly at the moment. Dealers can order them, and there's usually a 4 to 6 week delivery time. We charge £2.50 handling, but what the dealers pass on to customers is obviously at their discretion." This handling charge would be in addition to the normal £5.81 retail price of the wheels.

Meanwhile, Locomotive, the developers of LocoScript, seem equally frustrated by the unavailability of the foreign character print wheels that their software supports.

Loco's Howard Fisher revealed that they were looking into the possibility of supplying the wheels directly themselves. "We'll try to keep stocks of a few of every typestyle there is", he said.

The Swiss-French wheel is directly usable with LocoScript as shipped with the PCW9512, but to use any of the more exotic wheels (Greek, Swedish etc.) you will need Locomotive's print wheel configurer software at £14.95. Contact Locomotive on 0306 887902.

I Spy

What is definitely the most unlikely PCW accessory has been launched by Streamside Research – a fibre optic torch which, they explain, is useful for peering into disc drives.

If you can think of a reason why you should want to look into your disc drive, you will have to decide whether you want this handy tool in black, green or yellow. Price £2.00, contact Streamside Research, 2 Rosary Drive, Bridgwater, Somerset.

MUFFLED ROAR

Nabitchi have certainly been busy this month – as well as their portable PCW, they have developed a low-cost acoustic cover for the PCW9512 printer.

The 9512 printer has already attracted comment for the noise it makes, although daisywheel printers are never quiet. "People sell all kinds of add-ons for the PCW, like mice, copy holders or whatever," said Nabitchi's David Rathbone. "This printer hood isn't an add-on – frankly, I think it is a necessity," he humbly added.

The cover comes as a flat-pack kit, and anybody who can knock up an MFI bookshelf should be able to cope. It costs £29.95, and is available from Nabitchi on 051-708 8775.

Stand and deliver

Perhaps it's Christmas coming up but there has been a fair amount of activity in the computer furniture business.

Am-Stax, a London based firm, have come up with an interesting solution for any PCW owner who is limited for space. The Am-Stax stand is custom designed for an 8000 series PCW, holding monitor, keyboard and printer in a unit that takes up only ¼ of a square metre of floor space and is no wider than the PCW keyboard.

The screen slopes at 30° for easier reading, with the printer mounted above it. The keyboard is also tilted to what designer Brian Temple considers a better typing angle.

Marketing manager John Rippon suggests, with a chauvinistic smile, that the compact style will appeal to housewives who want to keep the PCW's insatiable appetite for space under control.

But perhaps most interesting is the price – £29.95. Future plans include clip-on disc trays, copy holders and mouse tables, and a 9512 version. Phone 01-373 4979 for details.

If you are looking for more room to spread out in you might be interested in Crompton Computer Furniture's more traditional range. The Compact Workstation is a desk with a paper tray and catcher for continuous paper, an optional printer shelf above the monitor. The prices are also more traditional – £119.50 or £139.50 with the overhead shelf. For details phone 0908 311544.

▲ The Am-Stax PCW stand.

QUICKIES...

Epson have issued a **writ of summons** against Amstrad for alleged infringement of trade marks. Epson's range of printers has such model numbers as LQ800, LQ1000 and LQ2500, and they claim that Amstrad's new LQ3500 24-pin printer conflicts.

Hard disc prices are dropping too, as **ASD Peripherals** (021-359 0981) have cut their 10 megabyte unit from £445+VAT to £299+VAT.

Cornix Software (0462 682989) joins the rush of companies to bring out a special version of their software for the PCW9512. **Card Index** has been specially adapted to take advantage of the new machine. The price is £34.95.

Prospell from **Arnor** (0733 239011) is now available in a special version for LocoScript 2 users. It costs £29.95; present Prospell users can upgrade for £15.

Digita (0395 45059) have brought their popular **SuperType** printer typeface program up to date with LocoScript 2. You can now get up to 4 fonts on one disc, compared to just one previously. SuperType costs £24.95, or £12.50 for an upgrade for existing users.

Dataphone (0733 230240) have released a low-cost **modem** at £79.95. Called the 'Demon 2', it is said to have all the usual features plus a few surprises.

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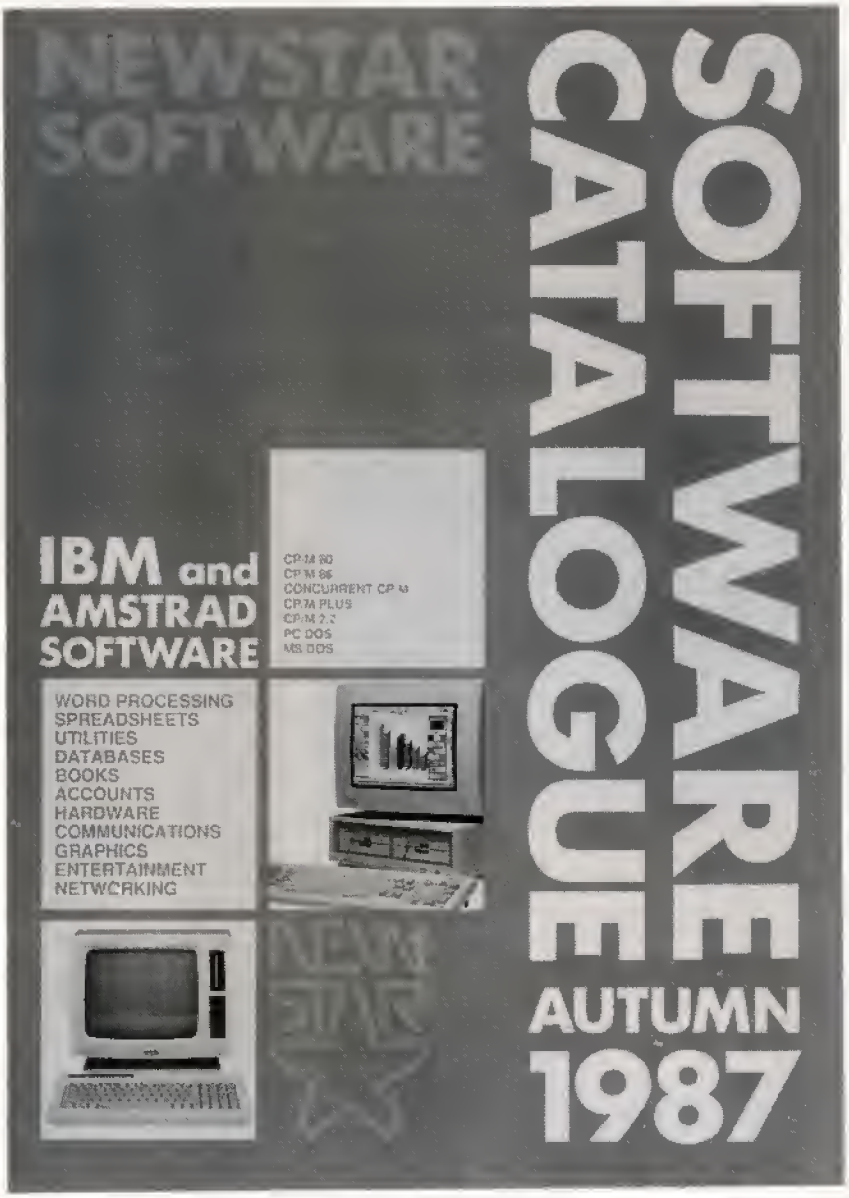

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IT'S QUICKER BY TRAINING

Rob Ainsley investigates a few alternatives to reading the PCW manuals

There's no magic about computers. Sure they'll save you huge amounts of time, money and tedium in the long run, but in between unpacking your PCWs and having your computerised paperless office running at the touch of a button, there's a lot of hard work to be done. The problem is that the training of yourself and all your staff in the intricacies of LocoScript, SuperCalc, dBase and the rest, can end up taking more of your time than you'd be saving anyway.

▲ Linda Boscic looking after nervous LocoScripters at Office International

If you *don't* enjoy the game of hunting through the Amstrad manuals for hidden clues, or if you run a small business on the principle that Time equals Money, then you might find the idea of paying someone else to do the hard work for you very appealing.

The answer could lie in one of the many PCW training courses around the country. The emphasis is heavily on LocoScript-for-business, with a few options such as introductions to spreadsheets or databases also available. You can usually choose between on-site training, in the comfort and privacy of your own office or home, and in-house training, done on the training company's premises. Group size is generally two to half a dozen though individual, 'customised' training is available by negotiation from some organisations. There are all sorts of options, from half-day intensive tutorials in the centre of London to a leisurely few days in the Scottish countryside golfing and fishing!

The advantage of the courses is that in just a day or two you or your staff can be professionally trained in all the necessary word processing techniques to be used in the office – and hopefully make up all those weeks lost in trying to figure out how to change layouts and all that time wasted setting italics via menus instead of [+] and [-] keys. The disadvantage is that they're not cheap. You can expect to pay something like £150 per person per day in London, while in the provincial splendour of Scunthorpe you can get the same for half the price. If you want the training to come to you 'on site', you'll be paying more, of course, and general opinion is that on site training tends to be hampered by phone calls, unexpected visitors, urgent business etc.

However, the cost is really of secondary importance. An unexploited PCW is five hundred wasted pounds, and it's probably quite fair to say that the courses will pay for themselves through increased office efficiency in a few weeks. Expensive as it sounds, the hourly cost of PCW training is only on a par with driving, horse-riding or piano lessons, for example, and any course which promised to teach you enough to be able to pass a driving test in one day would be well worth a try.

Of course

Typical of the training courses on offer is that run by Office International in Tottenham Court Road. The day 8000 Plus visited there was a class of four trainees being shown the basics of LocoScript by instructor Linda Boscic, who has over ten years' experience with various wordprocessors and seems to have an eidetic knowledge of every menu and screen in LocoScript. Of the four trainees, two had been sent by their companies, and two had come off their own bat. One had bought a PCW for her retail outlet but was finding it impossible to use, and the other wanted some ability with word processing in order to get a better secretarial job.

"In the early days, it was 50-50 between private individuals and people sent by their company," said Linda, "but now we're getting more company employees, I suppose as the PCW is being bought more by companies. We're already running courses on the 9512 and I expect we'll be phasing more of those in as time goes on."

Training sessions are roughly weekly at the moment, alternating between the 8000 machines and the 9512s.

Staying the course

The course is brisk and businesslike – the trainees each have their own PCW and are kept working solidly on it from the nine-fifteen start to the four-thirty finish. Most of the time they're being led by the hand through the various parts of LocoScript – "Press [f7], [f7], and then [f1], and you'll find yourself in the header, which is where you can change the layout of each document" – obviously only on the LocoScript 1 courses – but at the end of each section there's a document using the features just practised to be set up, typed and printed out unaided. The last part of the day consists of a test – "How do you indent text?", "How would you stop and cancel a print instruction?", and so on.

The four course members seemed quite satisfied at the end of the day. "The main thing is getting some confidence," said one, "I know I can do it now". They all felt much happier with the occasionally tortuous routines for setting out documents and layouts, without which the PCW isn't much use to any business.

A few incidentals on PCW practice also come up – one of the points made about direct printing was that it usually takes twice as long as on a typewriter, because everyone watches the printer churning out the line just typed before starting on the next one!

Call for help

As well as the day's course manual and a plastic ruler marked with 10, 12 and 15 pitch gradations to help you gauge your layouts, the trainees can take home the disc with all the files they've used and get plenty of very strong coffee too. In addition there's telephone support afterwards, so that they can ring up if they run into difficulties when they get back home – which is less than you'd think, according to Linda. "Just knowing they *can* call for help if they need it seems to give people the confidence to try things on their own. We actually don't get that many calls after the courses."

"I think the problem is that a lot of people run out and buy PCWs and are disappointed to find they have a lot of things to learn before they can start using it. But having said that, LocoScript is a brilliant wordprocessor. For office use, the dot matrix printer output could be improved upon, but the 9512's seen to that. For the money, any of the PCWs are incredible value."

▲ The height of new technology at the SBSG – PCW 9512s

Hot-line support

For many PCW-based small businesses, learning LocoScript may only be the beginning of the story. Where do you go for advice on how to use your PCW more effectively, on which software to buy, and who can you call when you can't get your labelling routines to work?

Fortunately for frustrated small businessmen there is the SBSG – the Small Business Support Group – in deepest Worcestershire. The aim of the group is to provide complete support for businesses using the PCW, everything from training in Loco to supplying specially-written software. Members can use a hotline telephone support when they run into problems; SBSG are familiar with most packages you'd be likely to see in the course of business, dBase, Delta, Condor, WordStar, SuperCalc etc.

Walk before you can run

There are, like most courses, two options in LocoScript, introductory and advanced. The introductory course starts from switching on and assumes no previous knowledge at all. It covers the really basic stuff you would need for business letters, making letterheads and setting up documents – saving, copying, deleting and moving files, manipulating the pitch, italic, bold commands by the [+] and [-] keys, etc., setting up templates and handling layouts. Though it's easy when you can do it, some people not surprisingly find sequences like [f7]-[f7]-[f1] to get in the header, cursor across to set pitch, down to set margins, then exit-exit-enter-exit-enter to get back to edit, confusing the first time.

The advanced course covers phrases, headers and footers, pagination, blocks and so on, and assumes a basic knowledge roughly equal to the topics covered in the introductory course. It is possible to do both courses but it's recommended that you allow a month or so between the two to let the first lot of information sink in.

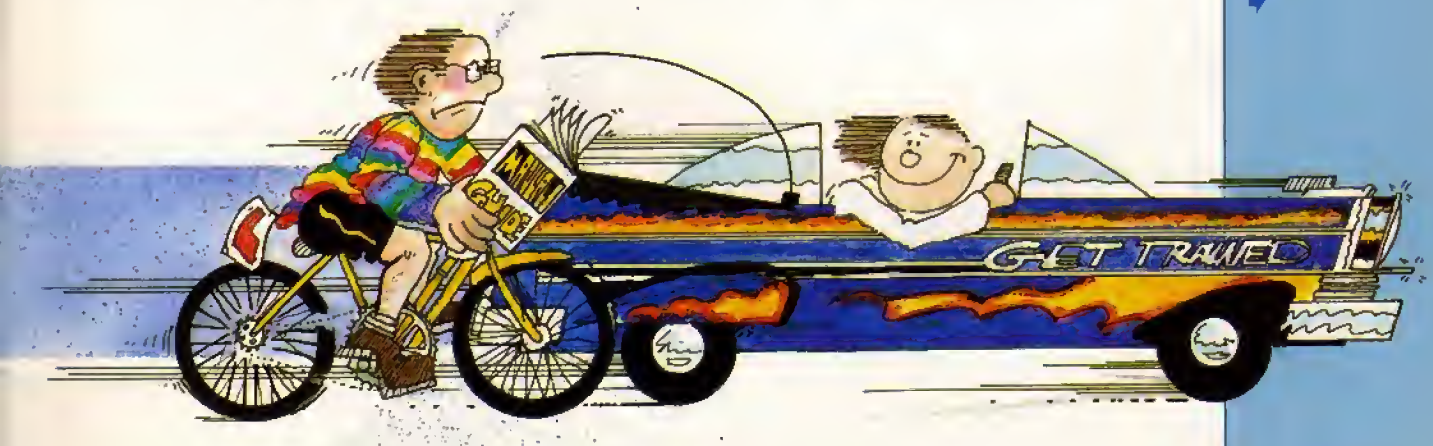
Members can also seek general advice on how to build up a system of software and hardware to suit their particular business needs. SBSG will provide anything from mundane services such as converting data discs from, say, 5¼" IBM PC to 3" PCW format, right up to high level consultancy work. They are also developing their own business software, such as some specialised 'vertical software' packs which to suit certain professions, like Estate Agencies or Dentists. These are essentially customised versions of the SBSG's own-brand 'Matchmaker' business handler program (something like a database-plus-labeller-cum-organiser).

Relax

Training is done on the customer's premises if required, though Jane Davis and Barry Rubin, who run the SBSG, reckon the best results are achieved away from the trainee's office, in the rural tranquillity of the Cotswolds. There's a personal touch to everything and trainees are encouraged to bring their own PCWs, business letterheads, data discs and so on, so that they can learn what they need to know for their own business – and go away with customised programs they can use the next day.

Barry and Jane find that one of the most popular areas for advice and consultancy is communications. To many small businesses, comms is a closed book, and the SBSG are keen to show how, for example, the process of sending telexes can be made much easier and simpler using a modem. Subscription to the group gives members free registration to electronic mail and telex services, which would normally cost £50.

Membership is £39 plus VAT (£44.85) per year and Dixon's are currently offering membership packs at that price with every Amstrad PCW they sell. Unless you're quite happy figuring out how to work your PCW into your business by yourself, it could be a very valuable investment.



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Directory

Below are a few of the PCW-specific training courses currently operating around the country, though the list is by no means comprehensive. There are various others (mainly in the south-east) which you might find advertised in the various PCW publications. However, things change fast and there will inevitably be many new outfits setting up. You'll often find adverts in local papers of private individuals offering help, and you can soon tell with a quick phone call whether the person is organised and affable enough to be useful.

Bear in mind that there are probably dozens of computer courses not specific to the Amstrad in your locality; details will be available in the Yellow Pages or from the local library. There are invariably evening classes on some sort of computer or word processor in most towns. Some of these may be on the PCW, but many colleges use IBM PC compatibles which aren't of any particular help for LocoScripters. Even so, LocoScript apart, much software runs on PCs as well as PCWs, and if you can master dBase II on a PC you'll be a long way to learning it on a PCW.

If you get really stuck your best bet is to ask around and find someone who uses PCWs regularly in their office or business who could offer some help. PCW owners are generally a friendly and public-spirited bunch and would be only too glad to help.

The types of course offered are listed separated by a semi-colon. All prices include VAT and are per person, per course. Most companies offering 'LocoScript' courses now offer a choice of Loco 1 or 2 tuition.

◆ Amstrad User Clubs Learning Centre
Centres "throughout whole of UK"
Book through 20 Vine Place, Sunderland SR1 3NA. 091-510 8787/9595.
Introduction; LocoScript; SuperCalc; dBase
Each course £57.44 (User Club members) £63.25 (non-members) – includes take-home training pack

◆ British Telecom
Birmingham, Bristol, Ealing, Glasgow, Leeds, London, Sale
Booking through 8 Quebec St, Leeds LS1 2HN. 0532 451000.
Introduction to LocoScript; Advanced LocoScript; dBase; SuperCalc; Lotus; WordStar
£130 per day

◆ Office International
247-257 Euston Rd, London NW1 2HY. 01-388 9344.
Introduction to LocoScript; Advanced LocoScript
£113.85 per day

◆ PS Partnership
27a James St, London WC2E 8PA/ 50 London Rd, Sevenoaks, Kent TN13 1AS. 01-379 3198/0732 460003.
Introduction to LocoScript; Advanced LocoScript; Sage; Delta; SuperCalc; WordStar
Half day £86.25, Full day £138.00

◆ Banna Wordprocessing
29 New Bond St, London W1Y 9HD. 01-493 3336.
LocoScript; SuperCalc
£172.50, or on customer's site at £143.75 + travelling

◆ Techfriend
54 Kelvedon Cl, Kingston-on-Thames, Surrey KT2 5LF. 01-549 7313.
Amstrad familiarisation; Introductory and Advanced LocoScript; databases; spreadsheets
On customer's site, POA but around £75 per half day

The reel thing

If you don't fancy the idea of a training course, or can't make it from your cottage industry on St Kilda, you might buy one of the training packs there are around. 'Reel Time' is a set of cassette tapes and a disc which guide you from zero through all the functions of LocoScript. The tapes have a running commentary telling you which key to press when and explaining what's going on. There's a summary chart and, on the 'electronic book' disc, problems testing your knowledge of the functions you've learned (with answers).

The disc itself is rather less use than the cassettes, which form a nice guide to your first few hours with the PCW. As such the price of £34.44 is not the biggest bargain in the world, but if you prefer the sound of a voice leading you through LocoScript to ploughing through a manual, this is what you want.

It's available from Head Line Communications of Hereford, Tel. 0432 271598.

◆ Dynamic Training College
5 Julian Cl, Woking, Surrey GU21 3HD. 04862 71499.
LocoScript
In house £110, On site £10 ph + 25p per mile travelling

◆ Computext
58 Castle Dr, Horley, Surrey RH6 9DE. 0293 776683.
LocoScript; spreadsheets; databases
POA, but generally £10 per hour private, £200 per day for companies

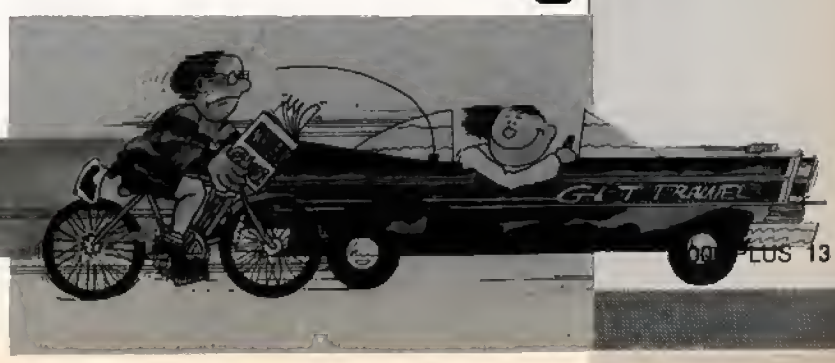
◆ Aztech Microskil
173 Basingstoke Rd, Reading, Berkshire RG2 0HF. 0734 755768.
LocoScript
One day course (Loco 1) £74.75 (Loco 2) £86.25

◆ Small Business Support Group
Kennel La, Bank Bldgs, Broadway, Worcester WR12 7DP. 0386 853610.
All business software and full telephone support/consultancy; membership £44.85 per annum
On site £171.35 (members) £201.25 (non members) per day; in house £90.85 (members) £113.85 (non members) per day.

◆ Megawise
Scunthorpe. 0724 863283.
LocoScript; SuperCalc; Cardbox; Sage; Delta; dBase
In house £85, On site £125, discounts for groups

◆ Computer User Training
1 Winckley St, Preston PR1 2AA. 0772 201346.
Introduction to LocoScript
2 day course £103.50

◆ Gary Hall
The Lodge, Sidmount Ave, Moffat (near Edinburgh) DG10 9BS. 0683 20440.
LocoScript; Masterfile 8000; Sage Accounts; Money Manager
Half day £25, one day £45, two days £89; accommodation available £8 B&B
Mr Hall suggests you make a fishing and golfing holiday of it!



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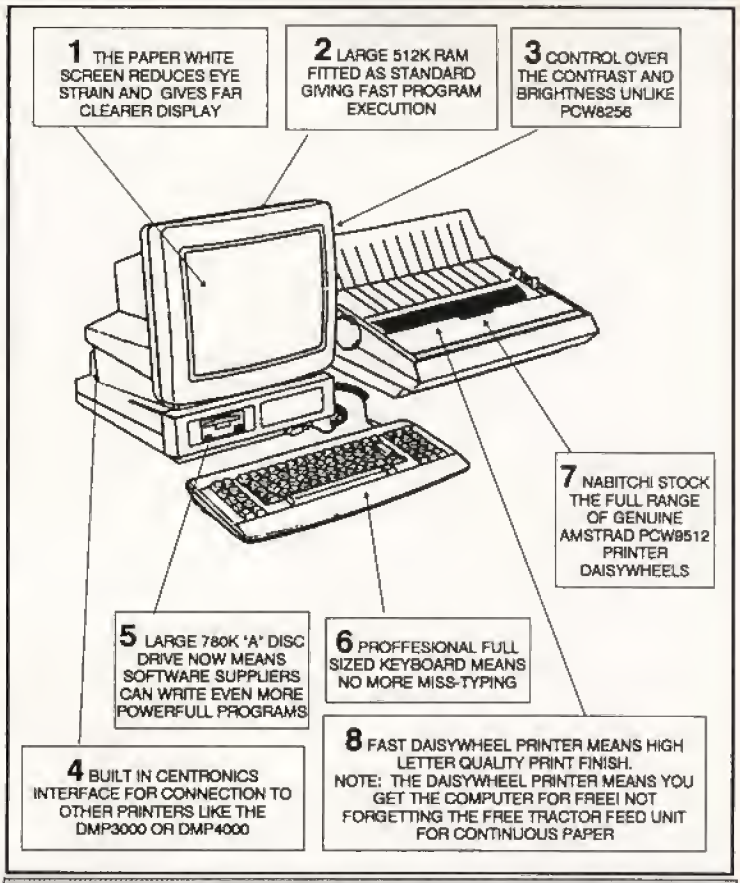

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ADVANCE STOP PRESS

After a year of activity in the Desktop Publishing market is there room for another DTP package? Alec Rae gets a sneak preview of Stop Press, the offering from Advanced Memory Systems. Is it different enough to make up lost ground?

There are obvious disadvantages in being the last company to launch a desktop publishing package. But as AMS prepare to launch Stop Press, the last in the expected line of major DTP packages, they must also agree that there are one or two advantages.

For a start they know what they are competing with. Software designers Tecnation certainly seem to have aimed at producing a program with a few differences over its rivals. While competitors have been thinking primarily of a system to produce news sheets in proper newspaper format, Stop Press aims to take a wider view of DTP.

Of course you can still produce a newspaper page on Stop Press but it is a program that gives you greater control over the graphic elements of the page than the words. For example, it offers a freehand art package and a simple-to-use graph drawing package, as well as all the fancy fonts and text handling facilities normally associated with DTP.

Getting it right

Working within the limits of the PCW the designers admit that you can't do everything. In Stop Press there just wasn't room for a text editor. Whether this is a major disadvantage or not must depend on the user's own method of working. The theory is that you use LocoScript to get your text right and then place this text file onto the page. All the style commands, such as bold and italics will appear correctly, and you have the benefits of doing all your writing in a familiar environment.

Stop Press offers a choice of 18 text sizes between 10 and 192 point, and you can infinitely alter the width of and height of letters in each type-size. You can also adjust the 'kerning' (the space between the letters) and the 'leading' (the space between the lines). This allows great opportunities to adjust the text to exactly fill the space available. There are 14 different fonts available to ring the changes with.

Stop Press steals a trick from LocoScript and runs on a two level system of menus or command keys. Instead of the familiar small pull-down menus, Stop Press has a large control panel which fills the whole screen. From this you can run any of the program's varied operations simply by pressing a couple of buttons on the mouse (coming from mouse champions AMS it naturally enough lays a strong emphasis on the use of a mouse).

The panel is set out in a grid with letter and number references, and you can call up any function at any time with a couple of key-strokes just by typing in these references – once you know the system well enough to remember the references.

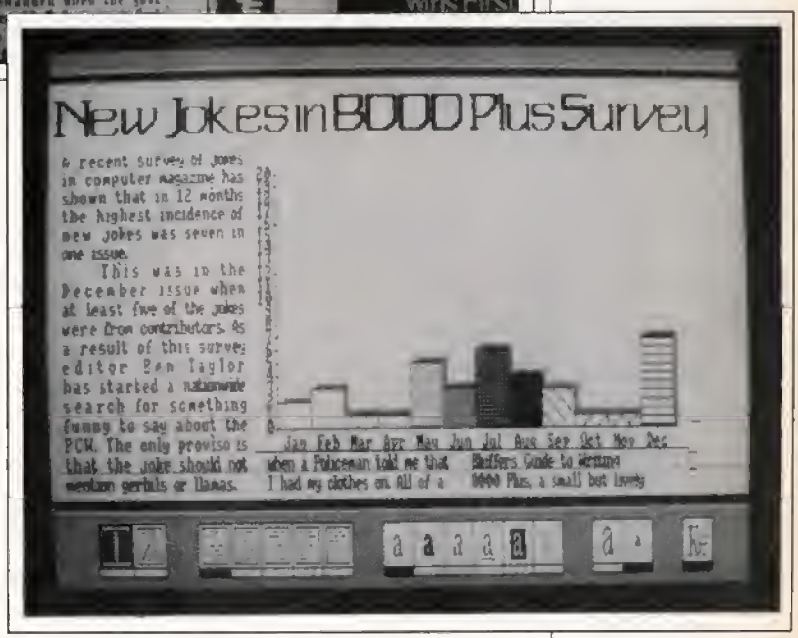
All operations can be carried out by using the mouse to click on icons so there are no complicated commands to learn. Some of the icons are very strange, and you may need a good imagination to work out what all the pictures signify!

Icing on the cake

Stop Press has a few features that make it a bit different to the other DTP programs. You can produce graphics with all the features you would expect in a stand-alone free-hand drawing package. There are even some unusual ones such as the ability to design your own small symbols and fill patterns.

If you don't have the artistic ability to create your own works of art you will still find the art editor facility useful when you want to try out some fancy design work on your pages. You can use it to touch up your headlines, for instance. Of course the program comes with a full set of clip art examples and it will read graphics from digitisers and the new MasterScan.

◀ Stop Press can still produce the standard newspaper type format.



▲ Stop Press's ability to produce graphs easily could be invaluable for the business user. This graph was produced in minutes using the Easi-Graph facility.

The business user may find the EasiGraph section invaluable. This is designed to allow you to present information as line or bar graphs or pie charts just by typing in the data values.

● *This preview is based on a pre-production version of the program. Stop Press is due out from AMS (0925 413501) in mid-November, price £49.99, mouse extra. We hope to present a full review next month.*

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"Many attractive features . . . its search features are particularly valuable"	*– Computing With The Amstrad PCW*

But some of you weren't satisfied. You wanted even more features than were already packed into the program and improvements in the manual and user interface. We listened to you and now we are proud to recognise the contributions our users have made to the design of AtLast Plus

So now we thank you. All existing users of AtLast are offered AtLast Plus at half price. Send the front page of your old manual, your serial number and £19.95 to Rational Solutions at the address below and we will send you AtLast Plus

* FEATURES *

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*** Field Types**
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*** Data Security**
Any file can be protected from editing, adding to or deleting or any combination of these.

*** Data Re-organisation**
Data definitions can be edited without having to re-type data. In most cases, this is handled automatically.

*** Manual**
A new manual to make things easier for beginners.

*** Menus**
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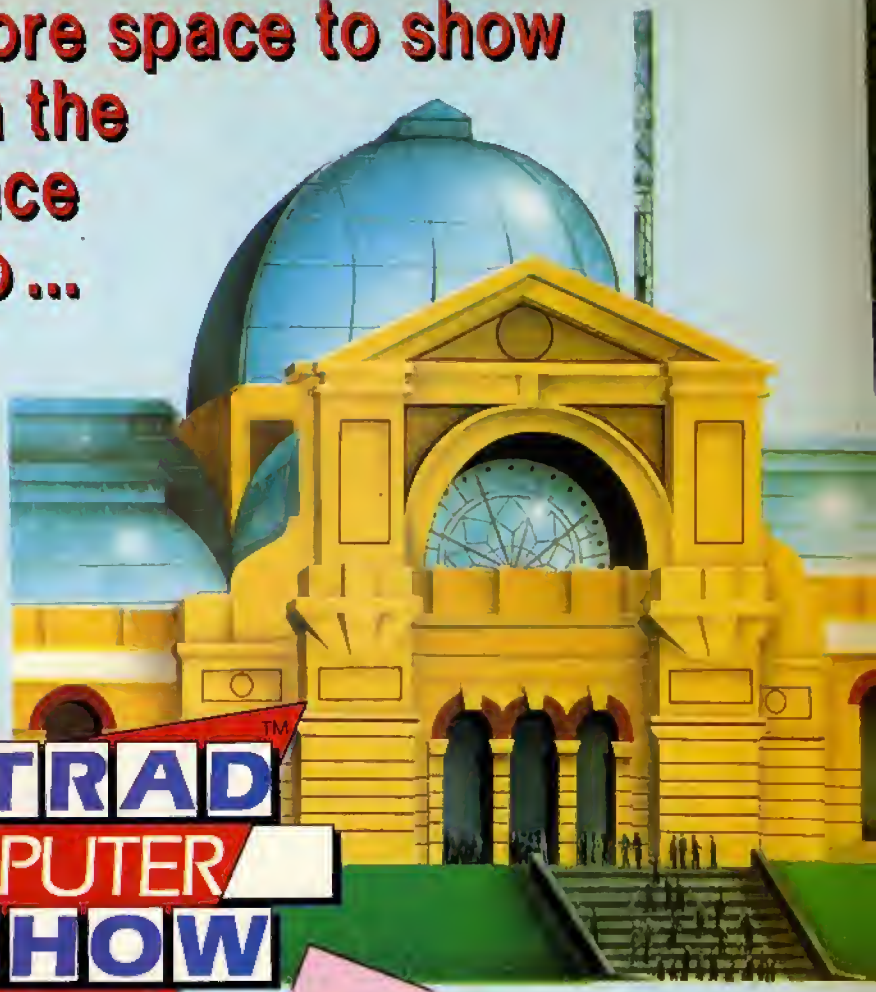

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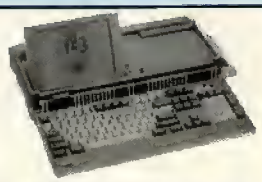

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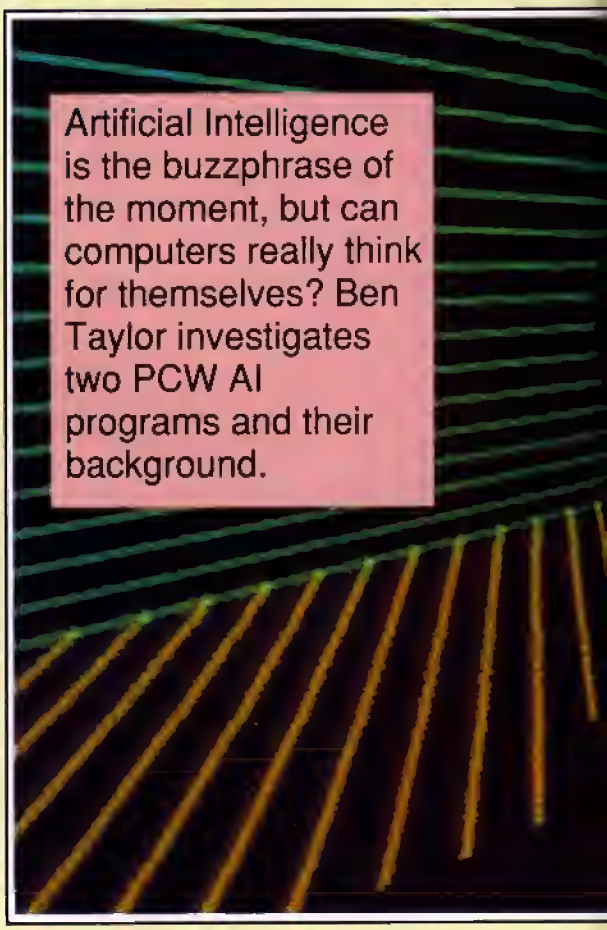


Artificial Intelligence is the buzzphrase of the moment, but can computers really think for themselves? Ben Taylor investigates two PCW AI programs and their background.

Here's a scenario which many PCW users will find all too familiar. You are sitting at your keyboard doing a spot of databasing when you decide to print out some of your data. You go through a long series of menus to set the printer up, and finally the program asks you to type in the name of the file to print. In your haste you type RESLUTS.DAT instead of RESULTS.DAT.

Whirr, whirr, the program solemnly reports that it couldn't find a file called RESLUTS.DAT and you have to go through the whole process again from scratch. "Why," you ask not unreasonably, "couldn't the stupid program have realised what I meant? It's obvious."

It is indeed obvious, and this is one reason why so many newcomers find computers impossible to deal with. Computers take everything so literally. But all that could soon change thanks to the exciting developments in the area of Artificial Intelligence, or 'AI' as it is called for short.

Anybody who has tried to write a program in BASIC even to do something relatively simple will know that it is harder than it looks. Writing software which appears to show common sense is extraordinarily hard, mainly because humans unconsciously use a vast amount of experience and background knowledge when making a decision. To the PCW, RESLUTS and RESULTS are both just collections of letters – it can't tell that RESULTS is a proper English word and therefore what you really mean.

In general, the kinds of programs that AI practitioners are trying to write are ones to emulate the various human faculties. Programs to understand English (written or spoken), to recognise objects in a photograph, to plan courses of action and to learn by trial and error are all under development. As yet, the science fiction human-like robot is still a good 25 years away.

However, one area of AI that is already with us and providing tangible benefits is the so-called 'Expert System'. Expert Systems are computer programs which act as advisers or experts in specific areas. One very common example is an expert system to diagnose medical complaints – tell it your symptoms and the program tells you what is wrong with you, applying the expertise of a doctor.

With the release of two Expert Systems – Wise One from Swallowsoft and Expert86 from Prospec – the potential of AI has arrived on the humble PCW.

Expert Systems

The first thing you have to realise is that computers are just a bunch of wires and plastic and can't think creatively on their own. The purpose of the expert system program is to allow you to tell the computer how to make sensible decisions.

Properly speaking (you ought to learn a little pedantry; it makes a great put-down to bores who ask awkward questions when you casually mention your artificially intelligent computer) the two programs reviewed here are expert system 'shells'. This means that they are empty frameworks waiting for you to put knowledge into them – it isn't until you have done this and got the PCW answering questions about your tax affairs that you have an expert system as such.

You can only get out of a computer what you put into it. If you yourself know nothing whatsoever about animal

Farmer note

For those city dwellers who know little of country matters be warned that [illegible] is not an abbreviation for Artificial Insemination. Bandy it about in conversation at your peril

What is intelligence?

One of the most interesting things about artificial intelligence is the philosophical and ethical implications behind it. Many people (especially religious commentators) argue that it is impossible by definition for a machine to be intelligent because it has no 'soul'. The soul is taken to be an indefinable quality that humans have.

There is a famous yardstick called the 'Turing Test' (proposed by the English mathematician Alan Turing) to gauge whether a computer is intelligent or not. Sit someone down at a keyboard connected to something in another room, and let them type questions in and read replies on the screen. If the person cannot tell whether it is a computer or a human that is responding, then the computer (if it is in fact a computer) is intelligent.

In other words, if a computer acts intelligently for all practical purposes then why not call it intelligent? This isn't a bad approach – after all, when you go to the doctor do you ask him what methods he was taught at medical school before accepting his opinion?

There are a couple of ethical points arising. How will all the doctors feel about being replaced by computers? Do patients trust computers? And what happens if a computer makes an wrong diagnosis – do you sue the computer owner, the program distributor, the original programmer or the human expert whose opinions were used as the basis for the program? All good stuff for family arguments.

THINK?

husbandry you can't expect to be able to write an expert system to advise yourself on how to breed llamas. In fact, to go further than that, in most circumstances an expert system which you set up yourself will be of little use to you personally because by definition you must know everything it knows.

So why are expert systems useful at all? Well, the idea is that they are used by someone other than the person who set them up. Take an expert who knows everything there is to know about the rules for claiming social security benefits: suppose you ask him to explain the rules he uses when he assesses a claim and you then put those rules into an expert system.

A typical rule might be something like: 'IF the claimant's assets are over £2,000 THEN don't allow any supplementary benefit', or 'IF the claimant wants any money THEN refuse'.

What you now have, in theory, is the assessor's expertise captured in a program. You could now sell this program to various self-help organisations around the country. People who go to these agencies for help would then run their personal details through the expert system and get a quick preliminary decision on how much benefit they can claim. In this way the assessor's knowledge – which is highly skilled and scarce – has become widely available.

This is why people are getting excited about expert systems.

WISE ONE

£34.95 ● Swallowsoft (PO Box 107, Walton-on-Thames, Surrey KT12 5PQ) ● All PCWs

The expert system programs just released for the PCW conveniently enough give examples of both the deductive and inductive methods (see the 'Secret of knowledge' box). Wise One falls into the deductive category.

For your money you get a spiral bound manual and a disc packed with examples. Getting an effective expert system out of Wise One falls into three stages. First find an expert and type all the relevant rules he knows into text files. Then run the 'Knowledge Builder' program over this file of rules which checks them for consistency and converts them into an internal format that is more convenient for the program to work with.

Once you have got this internal file (called the 'Knowledge Base' because it is a database of knowledge) you are ready to consult the oracle. Whenever you want advice on your health (or whatever area it was that you chose to write the rules about) you run Wise One's 'Consultant' section. This reads the knowledge base and applies the rules as best it can, eventually coming up with a conclusion depending on how you reply to the questions.

To write the rule file you will need to have some way of creating simple ASCII files. LocoScript is not really suitable, because of the problem of switching between CP/M and LocoScript but you can get by with the PCW's RPED BASIC editor. This can only create files up to 200 lines long, and ideally you ought to use a programmer's editor such as Protext.

You only need to go through the process of writing the rules and running the Knowledge Builder once. Once everything works all you need to have a consultation session is the Knowledge Base file and the Consultant program.

Doctor, doctor

As an example, here is how you might use Wise One to build a simple Expert System to diagnose common children's diseases – measles, chicken pox, mumps, colds and flu.

All the diseases involve a high temperature. Measles has red face spots, Chicken Pox white face spots, Mumps no spots but a swollen throat. A cold and flu have no spots, but flu is accompanied by a fever (say over 100°F) whereas with a cold the temperature is from normal up to 100.

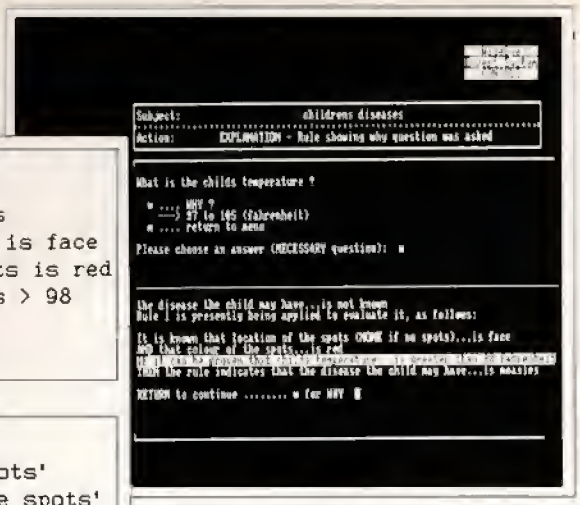
In fact, you have to make up two separate files which Wise One uses to get its rules. One contains all the questions that need to be asked as the program runs, and the other contains the rules which work on the answers – these are called the 'element' and 'rule' files respectively (one of Wise One's faults is getting carried away giving important sounding names to everything it does).

Secret of knowledge

There are two kinds of expert system. With one kind you work out what rules you use to solve a problem, type them into a file and let the expert system apply the rules in the same way you would.

The second kind is more ambitious. Instead of typing in the rules that you have worked out, you type in a set of examples. For instance, if you happen to know that the symptoms of measles are a high temperature and red spots, and for chicken pox are white spots (and so on), you just type in a list of the symptoms and diagnoses. The expert system then takes the examples and tries to work out for itself a pattern of what symptoms go with which diseases.

These two approaches are respectively 'deduction' and 'induction'. The deductive expert system takes the diseases it knows about, deduces what the symptoms ought to be and checks them against the actual symptoms until a match is found. The inductive system takes the known symptoms and tries to work out the diagnosis from past experience.



► Wise One giving profound advice – it wants to know the temperature, but the user has asked why. The explanation is the lower half of the screen

```
rule
disease is measles
if spots position is face
and colour of spots is red
and temperature is > 98
#
```

▲ An example 'rule ' for Wise One

```
elem'colour of spots'
text'colour of the spots'
valo'red;white'
ques'What is the'
#
```

▲ An example 'element ' for Wise One

Extracts from the two files are shown in the printouts. You can see that in the rule file, the English is a little stilted but the logic is pretty clear and simple to write. In the element file the language is much more complex, and unnecessarily so. Essentially each chunk sets up something the system needs to know about (like the child's temperature), then defines how the user should be asked. For example, the 'colour of spots' entry makes the program print on the screen "What is the colour of the spots?" and only take red or white for an answer.

Once these definitions have been checked by Wise One, you can get going with the consultation. This is straightforward. The idea is that someone totally unskilled with computers can just sit down and answer a string of questions and be presented with an answer.

Wise One has a range of special rules to do things like print out helpful information at strategic points, and to make sure that the questions are asked in the right order. For instance, there is no point asking what colour the spots are before asking whether there are spots there at all. You can even store screenfuls of text in files on disc and pause to display the whole file in the middle of a consultation.

Wise One's rules are really a mini programming language. You can arrange for simple arithmetic comparisons to be done, which is very useful. For example, if today's temperature is more than yesterday's, then do something special.

The user is allowed to ask 'Why?' whenever Wise One asks a question, just as you might ask your GP why he wanted you to stand on your head. This prints out the current rule it is thinking about with details of why that rule is being used.

Without doubt Wise One is a powerful expert system shell. It has a few faults. Its way of writing rules in is at times unnatural and overcomplicated; you can't include quote marks in text messages you want to display; simple mistakes can result in a frightening avalanche of error messages; the manual takes a delight in referring you to other pages ('see section 4.3.2' etc) and in introducing jargon names as often as it can. You will need to have a programmer's instinct to get the best from Wise One.

PLUSES
- Has the necessary power to be genuinely useful
- Can cope with elementary arithmetic
- You can set up screens of help text for the user

MINUSES
- Unnecessarily obscure way of writing the rules
- Documentation is too dry and academic

RANGE OF FEATURES ■■■■■ PERFORMANCE ■■■■■
EASE OF USE ■■■■■ DOCUMENTATION ■■■■■

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EXPERT86

£23.45 ● Prospec (PO Box 28, Beeston, Nottingham NG9 1PH) ● All PCWs

Whereas Wise One is a deductive expert system shell, Expert86 is inductive – it tries to work out its own way of getting the answer from a set of examples.

Prospec will sell you Expert86 for only £4.00 if you don't need the manual – the disc contains several large documentation files anyway. Having said which, the manual is well written and definitely worth having unless you are really confident of your abilities.

This 'inductive' business sounds great, doesn't it? Just throw a load of facts at the system and it works out the rules for itself. Of course life isn't that easy, and it has to be said that although Expert86 is much easier to use than Wise One it is ultimately not as powerful.

To run the doctor example through Expert86, you need a different approach. Again you need to create a text file of the questions to be asked when the program wants to find out the child's temperature and so on.

However, where Wise One needed a rule file, Expert86 wants a 'training set'. This is a file containing as many examples of diagnoses as you can think of. For the system to be infallible you need to type in every possible example it could ever come across, which is sometimes possible in small applications. If you generalise and go for a compact training set the system will work fine in most cases, but sometimes will not be able to find an answer. In the example shown, if a child had red spots in the throat there is no known diagnosis.

An asterisk in the training set means 'don't care'. This is useful if a symptom doesn't affect a particular disease. For example, you aren't bothered what temperature the child has for chicken pox because it can be high or normal depending on what stage the disease is at.

The tree of wisdom

When you run Expert86 it looks over your training set and works out its decision process. It composes a decision tree which it writes to a file in English form, and it is often interesting to read this. If one symptom is actually totally irrelevant in the entire diagnosis (suppose you had set up a column for the colour of the patient's eyes) you will see that even though you religiously typed it into the training set file it doesn't appear in the decision tree. This tells you, the system designer, a lot about the problem and can clarify your own thinking.

PLUSES
- Doesn't need explicitly written reasoning rules
- Clear documentation with examples
- You can arrange for explanations to be given in natural English

MINUSES
- You can't control the order questions are asked
- No way to handle numbers/arithmetic
- Need to recompile the whole system for each run

RANGE OF FEATURES ■■■■■ PERFORMANCE ■■■■■
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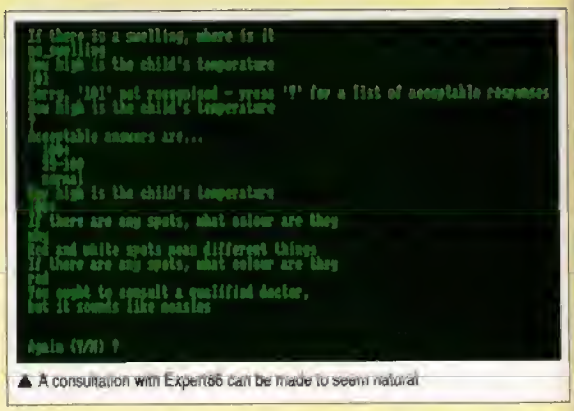
Expert86 automatically runs the consultation session after it has worked out its decision tree. This is a conventional question and answer session ending in some result (or the program giving up!).

The user can ask 'Why?' at any stage, when Expert86 parrots back some text which you defined in the question

temperature	position of spots	colour of spots	blocked nose	swelling	diagnosis
99-100	face	red	*	*	measles
100+	face	red	*	*	measles
99-100	no_spots	no_spots	*	throat	mumps
100+	no_spots	no_spots	*	throat	mumps
*	face	white	*	*	chicken_pox
99-100	no_spots	no_spots	yes	no_swelling	common_cold
100+	no_spots	no_spots	yes	no_swelling	flu

▲ A 'training set' for Expert86, listing symptom and diagnosis examples.

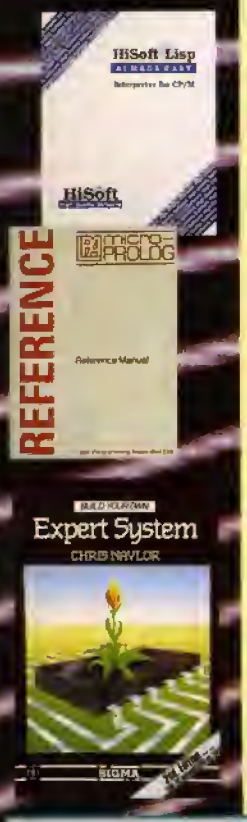


▲ A consultation with Expert86 can be made to seem natural

file. This sounds unsophisticated, but if used carefully you can engineer some almost natural English conversations.

Expert86 has a good manual which explains well the basic principles and gives good examples. However, there are some problems. There is no way to do any arithmetic (eg. to say some result is true if one value is twice another one). You can use numbers if you are crafty in the way you phrase questions: when asking the child's temperature you can't ask for a number, you have to allow a range of answers like 'normal', '99-100', '100+'.

A major problem in Expert86 is that there is no way to force a specific order of questioning. If you were writing a tax adviser you might find yourself being asked how much your spouse earned before being asked whether you wanted to be separately assessed or not. In practice this means that Expert86 is not suitable for situations where you want to be able to follow specific lines of questioning depending on replies to earlier questions, which to be honest covers quite a lot of applications.



REFERENCE

Do it yourself

"So," you say to yourself, "that's what expert system shells are then. You tell them everything they need to know and they just do it. What's so hard about that?"

A fair comment really. Expert system shells are not inherently all that complex. It's the rules you put in them that count. You might be interested in knowing a little more about the internals of how the shell works out what the rules mean and how it applies them – you can even have a go at writing your own expert system shell.

Many people will tell you that to write an 'artificial intelligence' program like this you need to spend a fortune on an exotic programming language. This isn't true. Even with your humble PCW BASIC you can get a long way.

The first thing you should do is go out and buy a book called *Build Your Own Expert System* by Chris Naylor. This costs £11.95 and is published by Sigma Press – any bookshop should be able to order it for you, or you could ring Sigma on 0625 531035. It's an excellent book which works up from explaining what expert systems are to printing complete program listings in BASIC. Ostensibly it is angled at Amstrad PC owners, but in practice all the examples will run on PCW BASIC too.

It's written in a friendly and witty style that should appeal to 8000 Plus readers. ("There are two major faults possessed by most existing expert systems: that you, personally, don't understand how they work; and that you, personally, haven't got one. These faults can, in extreme cases, be quite serious.") Nevertheless there is a lot of hard fact in the book, including a quick statistics course for the keener reader.

'Real' AI

For the really dedicated artificial intelligence programming fan, the pleasure of programming in BASIC may pall after a while. Most programming examples published in the serious technical press are written in one of two programming languages, LISP or Prolog.

You can in fact run these languages on the PCW. Hisoft have recently produced a PCW version of LISP selling at £49.95 which includes a LISP tutorial book normally selling for £13 by itself. Although a copy was not available to review Hisoft have a track record of good PCW versions of most programming languages, so it's well worth a chance.

On the Prolog front, the best value-for-money package seems to be Micro Prolog at £74.75. This is available from Logic Programming Associates (01-871 2016). Don't forget to tell them it't a PCW you are using or you are liable to get a version for some poxy foreign machine like an IBM PC.

This is neither the time nor the place for an in-depth argument about the merits of BASIC vs. LISP vs. Prolog (the academic journals have been full of such articles for 10 years and there is still no consensus as to a 'best' language). Suffice it to say that you *can* write a perfectly adequate expert system on your PCW using BASIC.

One of Prolog's strengths is that it is almost a ready-built expert system shell, and it also has plenty of features for people who want to write programs to understand written English. As for LISP – well, it *is* a useful language but it is probably fair to say that if you haven't used it before (such as on a university course) and you don't know that you need it then you probably don't need it.

EXIT

Knowledge harvesting

How well an expert system performs depends on how well thought out and correct the rules are

What happens if you want to write an expert system to advise about nuclear reactor design, or some other subject that you don't know anything about? How do you know what rules to specify? You have to go and find a tame expert, borrow a couple of hours of his time and ask him to explain how he solves problems.

This process is quaintly known as 'Knowledge Harvesting'. It is the most important part of building an expert system, and a grasp of human psychology comes in very handy. The expert probably makes a lot of unspoken assumptions that aren't obvious either to you or to the computer. You as the questioner have got to make sure that absolutely every relevant part of the reasoning process has been unearthed and explained in a specific enough way for you to be able to write down a simple rule for it.

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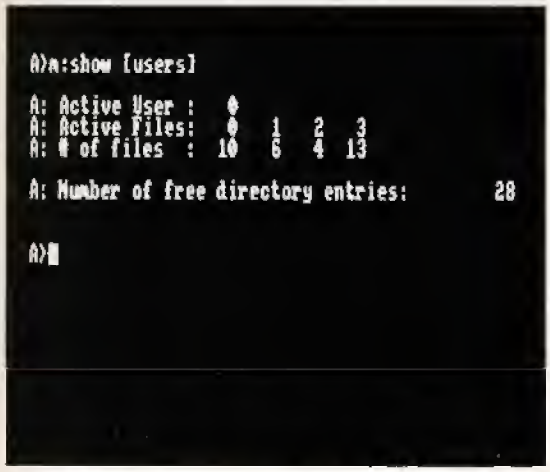
GROUP BEHAVIOUR

Alec Rae reassures LocoScript expatriates that they can still organise CP/M files into groups

Things can get pretty confusing when your disc has got 200 files on it, particularly if they are all called LETTER.MUM, LETTER.DAD and so on. LocoScript has a clever way of dealing with this problem by splitting the disc into 8 user groups. These are the neat columns that you use divide up your documents to make your discs really organised, each with a TEMPLATE.STD. Using these groups is second nature to all LocoScribes, but it may surprise you to learn that the same useful filing system is available in CP/M.

User groups are like drawers in a filing cabinet. In CP/M you can keep files in up to 16 different groups on the disc (as opposed to LocoScript's mere 8) – these are rather confusingly numbered 0 to 15. If you don't tell CP/M otherwise everything you do goes into user group 0, so when you type `DIR` you may have to plough through a vast directory. Double density discs (9512 discs and 8512 'B' discs) store up to 256 files, so it can get pretty traumatic. Splitting your files into user groups keeps things neat and tidy.

Normally you are in user group 0. When you first start up with CP/M and if you see an A> prompt this means you are in effect in group 0 on disc drive A. Type `A1:`, `1A:`,`1:` or even `USER 1` and you will be mysteriously transported into user group 1. Remember the colon after all the shorter versions or you will just get an annoying 'A1?' back. Try `DIR` now and you will see 'No file'.



▲ The quick way to find if there are files in User Groups other than Group 0. Use `SHOW [USERS]` to find out which groups have files in them and how many are in each. In this case groups 0 to 3 have a total of 28 files in them.

A moving experience

The first thing to get to grips with is moving files between different user groups. To do this you have to pull out the ever faithful PIP. Just as you can use PIP to copy files to a new disc you can use it to copy the file to a new group on the same disc and then (if you want to) erase the old version.

You all know (don't you?) that to copy a file from, say, disc A to disc B you use

```
PIP B:=A:SECRET.LET
```

Well, to copy the file from group 0 of disc A, where you probably first created it, to group 15 of disc A you would use the command

```
PIP A:[G15]=A:SECRET.LET[G0]
```

Then, assuming you don't want to keep a version in group 0 too you have to erase the letter from there (make sure you are in group 0 by typing `0:` if necessary and then `ERA SECRET.LET`) and the operation is complete. You naturally need the file PIP.COM on your disc or M drive.

In this way, once you have finished a correspondence with somebody you can shuffle those files out of the way into an obscure group number. You can get at them if you need to refer back, but they won't get in the way of your daily operations.

The parallels between LocoScript's user groups and CP/M's are no coincidence, for they are in fact exactly the same thing. If, once you have started CP/M up, you put a LocoScript disc in the drive you will see what this means: type `1:` to get to user group 1, `DIR` and all the LocoScript documents stored in LocoScript group 1 (the *second* group – numbering starts from 0 don't forget) are listed.

Doing the LocoMotion

PIP's extra speed in CP/M file handling means that it might be worthwhile using this method to sort out your LocoScript discs. You can carry out group movements of LocoScript files that you normally would do with PIP.

Say you want to move all the files in group 0 of a LocoScript disc into group 7. If you have got more than a few files this could take a long time in LocoScript with six or more key presses for every file you move. But it is easy in CP/M using PIP with its 'wildcards' – those natty little symbols that allow you to copy groups of files at once.

In PIP commands, an asterisk stands for any word so

Where have all the files gone?

What sometimes does worry people is that in CP/M you can't see where all the files are. If you type `DIR` all you will get shown is the files in the user group you are in, unlike LocoScript where you can see all groups at a glance.

You can see all the files on a disc but it takes a little work using DIR. As it is one of the special functions of DIR you will need to have DIR.COM on the disc or in the M drive. Then type `DIR [USERS=ALL]`. The computer thinks for a moment, prints up 'Scanning...' and 'Sorting...' and then out come all the files from all the user groups complete with the size of the files and a lot of other interesting detail.

If you have a lot of files (more than a screenful) it thoughtfully stops at the end of each screen and waits until you press [RETURN] before continuing. You can use the usual CP/M trick of pressing [ALT]+P to make the screen output come out on the printer for a permanent hard copy of long directory listings.

If you simply want to a quick check on what user groups are in use it is easier to use the SHOW command (assuming you have SHOW.COM on the disc or in M drive). By typing `SHOW [USERS]` you get a list of all the groups that contain files and how many files there are in each group.

Into Limbo

One of the weirdest uses of user groups is LocoScript's Limbo files. If you edit a file in most word-processors it will automatically rename the old copy of the file as a back-up file in case you need to undo the changes – editing HUNCH.LET creates HUNCH.BAK for instance.

On the other hand when you edit (or erase) a file in LocoScript it seems as if it has actually disappeared. In fact it is spirited away into a semi-existence called Limbo where it can be called back under certain circumstances.

What is actually happening is that when you edit a document the old version is moved into Limbo. Similarly erased files are not really erased but moved into Limbo. Try working in LocoScript with the 'Show Limbo' option on and see what happens.

Only eight user groups appear to be available in LocoScript (0 to 7) as the other eight are used to hold Limbo files. User group 8 is used to hold the Limbo files for group 0, group 9 for group 1 and so on.

As the disc fills up LocoScript dumps these Limbo files if it needs to re-use the space. If you took a LocoScript disc that claimed it had 100k free and looked at it in CP/M you might find it saying that the disc was full – because of all the user groups from 8 to 15 are full of files that LocoScript treats as Limbo files but CP/M thinks are important files.

Using a LocoScript disc to store CP/M files on will usually mean going through the user groups from 8 to 15 doing ERA *.* to clear the Limbo files off.

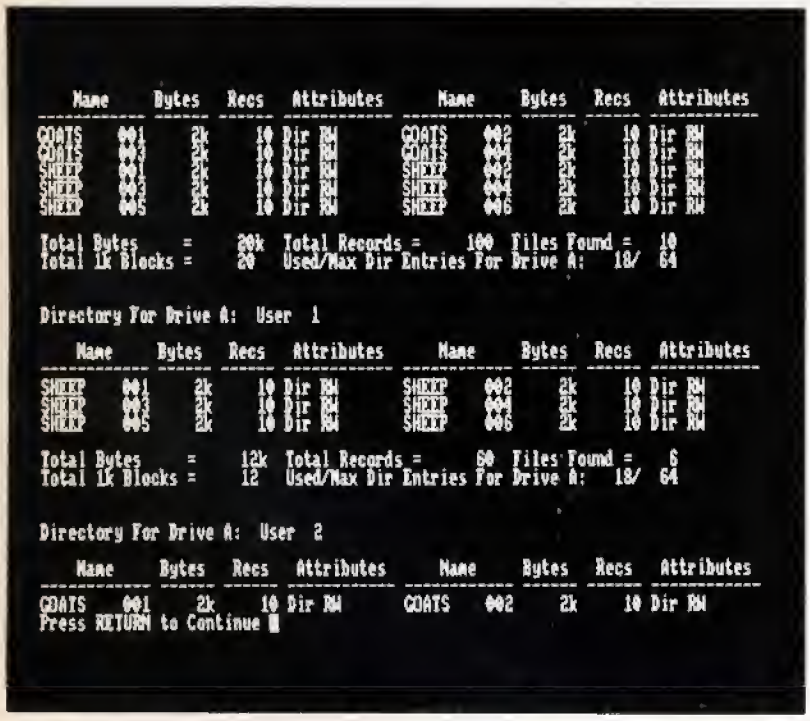
Hard decisions

You may think things are pretty bad with 256 entries on a double density floppy disc, but if you use a hard disc you may be faced with 2,000 or more files. Hard discs can store 30 or more floppy disc-worth of data, so you can see how important organising files into groups is.

PIP A:[G7]=A:*.*[G0] moves all the files in group 0 to group 7. Or say you want to move every file which ends in .LET from group 1 into group 7 of your disc – just type PIP A:[G7]=A:*.LET[G1] and off they go.

In the same way, ? is the wildcard symbol for a single letter or digit. PIP B:[G5]=A:DOCUMENT.00? will move every file from DOCUMENT.001 to DOCUMENT.009 to group 5 on your B drive and leave everything else untouched.

This is not the only time that it would be worth using CP/M to work on a LocoScript disc. Anyone who has tried to erase a number of files in LocoScript knows what a time consuming exercise it is. If you happen to want to erase all files in the same user group life is simple with CP/M. Just go to the group in question (use DIR to check that you've got the right one) and type in ERA *.* and the job is completed in seconds. Only the files in that particular user group will be erased. You must remember however that this really does erase the files. There is no popping back into Limbo to find them – unless you have an unerase utility program.



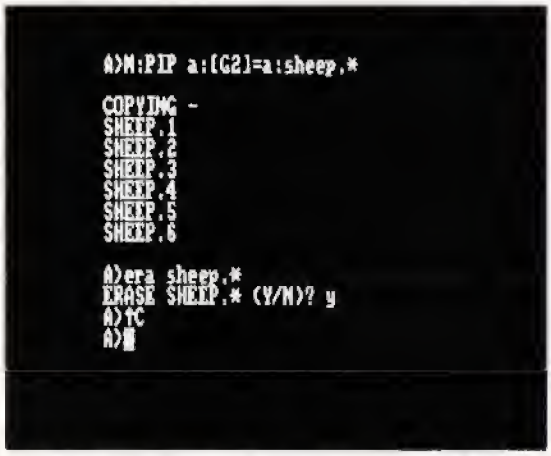
▲ The effect of dividing the sheep from the goats. This is what you see when you use DIR [USERS=ALL] to see all the files on your disc. Each User Group is listed out in handy screenfuls allowing you plenty of time to see what files are in which group. This is what you would see if you had transferred all the files starting SHEEP to group 1 using wildcards.

Problems? What problems?

One problem lurks to trap the unwary. If you change your user group by typing USER 7, for instance, then the only files you have access to are those in group 7. You may have all your work files stored in group 0 – like PIP.COM, BASIC.COM, a word processor and so on – but because they are not stored in group 7 you can't get at them without changing groups back again.

So what do you do? Store PIP.COM in every user group on the disc? This would be a terrible waste of space, so fortunately there is a simple way around this. You declare that all these files that you want to be able to use from any user group are 'system files'.

Now when you type a command at CP/M's prompt, this is what happens: suppose the prompt is currently 7A> and you



▲ The basic tool for moving files from one group to another is PIP.COM. Here all the files starting SHEEP are being copied from Group 0 where they were created to Group 1 using wildcards.Then all the files in Group 0 can be erased (if you want) to complete the transfer.

type BASIC [RETURN]. CP/M looks at all the files stored in group 7 of drive A for BASIC.COM. If it doesn't find it, it would normally reply 'BASIC?'. However, CP/M will also look through all the system files on the disc too, so if BASIC.COM is a system file then it will be found and run regardless of what group it is in.

You will need the file SET.COM on your working disc (it can be found on the CP/M master disc). To make the file BASIC.COM a system file just type

SET BASIC.COM [SYS]

and now whenever you type BASIC the familiar Mallard welcome pops up, no matter what group you are working in at the time.

When you type DIR now BASIC won't show up, except bracketed under the obscure message "SYSTEM FILE(S) EXIST". To list the system files out, type DIRSYS, which will also thoughtfully tell you "NON-SYSTEM FILE(S) EXIST" in case you didn't know. To convert a system file back to a normal file you would type SET BASIC.COM [DIR].

System files however have their own little problemette. As well as not showing on the normal directory, system files create don't behave normally when it comes to PIPping. PIP won't copy system files unless you add the option [R] as in PIP M:=A:BASIC.COM[R].

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FILLING GAPS

In which dentist Andrew Shelley embarks on the long haul to marketing his brainwave

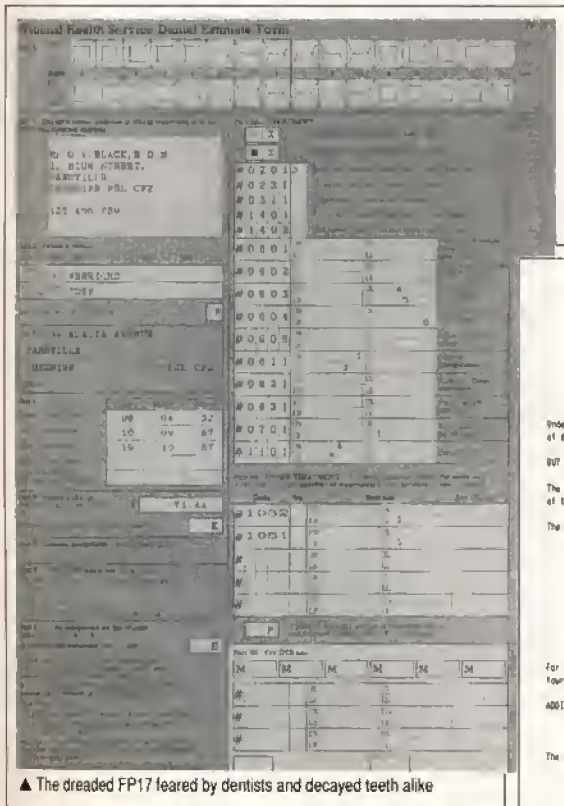
The first encounter with my new PCW was traumatic. I had experimented with various home computers with the aim of easing the burden of repetitive tasks in my dental practice. I quickly realised that a proper 'grown up' computer was required. Unlike many people I bought a PCW because I wanted a business machine rather than a word processor.

Experiments with unsophisticated computers had not prepared me for what was to follow. I launched into the CP/M manual with all the enthusiasm of a man facing his first vindaloo and expecting to enjoy it. My first taste of CP/M came as a blow. I understood that to move a file you have to use PIP, but what is a file, why would I want to move it, and who's PIP anyway? I had to call for the cavalry. I am in the fortunate position of having several friends who are either enthusiastic amateurs or professionals in the computer world and they nursed me through my technological adolescence. "You need programs to run other programs", one explained. This was a new concept to me, but the fog began to clear and I soon found myself becoming another enthusiastic amateur discovering the delights and frustrations of 'real' computers.

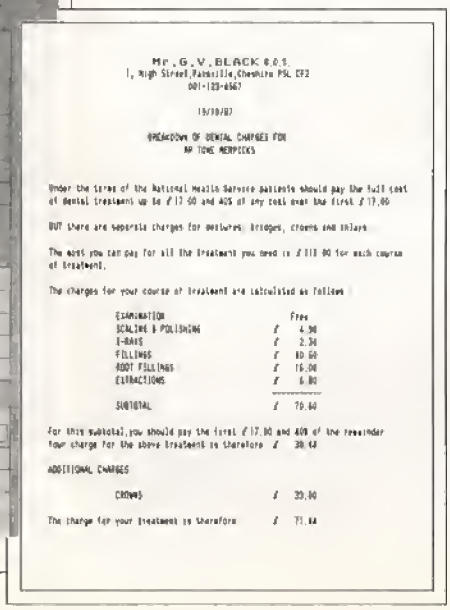
When I was about to enter dental school my own dentist warned me "most of your time in dental practice is spent writing letters and filling in forms. Any work you do on people's teeth is purely incidental!" There is truth in this. We write recall letters, account letters and reminder letters; we send referral letters to consultants; we give out leaflets with instructions for patients or messages about dental health. Having broken the LocoScript pain barrier I soon found that the prospect of LWWP (life without word processing) was intolerable.

The human factor

Clearly the PCW would be a valuable tool in all this administration. The dental practice project was under way, and I enlisted the help of a friend who is a computer systems project manager. With a professional at work we began to discuss not how to program a computer but the concept of a system in dental practice.



▲ The dreaded FP17 feared by dentists and decayed teeth alike



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Dental practice management systems have been around for some time now and so we had the advantage of a critical appraisal of their achievements. Comprehensive and expensive systems have not provided the panacea that many expected. Dentists found their systems complex and cumbersome to use, and some abandoned their newly acquired computers to return to the tried, tested and reliable manual methods.

I know of a dental practice that uses a dental management system so complex that only the receptionist, who has responsibility for it, is capable of using it. If she is on holiday, disaster strikes. Not even the Dentist knows the ins and outs of the system. One of our goals therefore, was to develop a system that was quick to use by all staff, including the Dentist.

A major feature of existing systems is dental record keeping. At first sight this seems eminently sensible. Immediate access to records and the opportunity to prepare instant statistics are convincing charms to woo the unwary. However, I had experience of computerised records from working at another practice and had several objections. The most notable incident was the morning when we arrived to find that the hard disc drive no longer held the records which a secretary had spent several weeks typing in. Also there were four terminals to the system which made it very expensive indeed. It could never have been cost effective.

Typing records into a computer system when you have four patients in the waiting room, all with toothache requiring immediate attention, is a frustrating experience. Handwritten dental records have become refined with many

The good and the bad

The final step in the production of our system was the user guide, and as I had taken a relatively minor role in the actual programming it fell to me to produce this.

I felt that being a non-expert was an advantage in producing a clear, readable, and jargon free user guide. My starting point was the Amstrad PCW manual. You can learn a great deal from seeing something done badly. As a *good* example I took the SuperCalc user guide, a model of clear explanation. You don't expect this from the Americans – as a general rule I would expect to find 'switch on the computer' roughly translated as 'As of the initial moment of time one should find oneself in an ongoing pressing the power button situation in order to engage the on mode'. This is not the case and it's a credit to Sorcim that they have managed to restrain themselves so admirably.

I booked a week off work to write the user guide and it took me four months. I began to sympathise with the authors of the PCW guide. It is a very delicate balance to provide a full explanation without over-complicating the situation and at the same time avoid patronising the reader. I was, however, very pleased with the result. It included a guide for the first time computer user, an example, a reference section and a glossary.

shorthand symbols over the years and many find that manual records are much faster than their computerised counterparts. X-rays and referral letters often form part of a dental record, so it would therefore be necessary to keep a manual file in any case. Far better, in my view, to keep them all in one place.

Those who expected that their computer would ensure they would never lose a record again have been disappointed. We all have our tales about computer cock-ups; mine concerns a well known domestic appliance manufacturer who denied our existence. What had happened was that our name had been spelt wrongly on the database and so could not be found.

Dental appointment systems have been tried. The difficulty with this is that it is only possible to see a few hours of appointments at a time on a monitor. Compare this with the handwritten version where it is possible to see a whole week at once – you can assess at a glance how busy the forthcoming week is and where the free appointments are.

Money is the root

If the practical considerations of bookings and records systems in a dental practice make computerisation tricky, Dentists' fees and patients' charges are a different matter. Dentists are paid according to the items of treatment that are carried out and there are some two hundred different items of NHS treatment carrying different fees. However, it is not simply a matter of totting up the fees. For example, the fees for a combination of items can be different from their simple sum.

Some fees vary according to the teeth which are involved, or maximums may apply to groups of items. Having worked that out the patient may have to pay the first £17 or their treatment and 40% of the remainder. However, some items are free of charge and others have their own fee which has to be added separately. In short the NHS dental system is full of idiosyncrasies, in addition to which the fees and charges can change twice a year. In my view this is an area where a computer can really prove invaluable. It would no longer be necessary to look up fees or perform complex arithmetic, it would simply be a matter of telling the computer what treatment had been carried out and leave the rest to the system.

The National Health Service documentation is another area where a computer system could show its worth. There is a form called an FP17, the bête noire of dental practice. Mention FP17 to a dentist and you may observe a far away look come over him as he recalls hours of frustrating wasted time filling in and checking the dreaded 'form'. It is, in fact the form that your dental practice asks you to sign whenever you have treatment under the NHS. On the reverse of this form the dentist enters all the treatment which has been carried out for the patient and submits it to the powers that be for payment. This can be a mammoth task in some cases. Whilst a computer holds the patient's details it is quite possible to feed one of these forms into the printer of a PCW and watch in astonishment as it completes in seconds what was previously achieved in up to an hour.

It need not stop there, however, the same details can be used to print out a range of useful documentation. For example, estimates of costs for patients, explanatory breakdowns of charges, statements, and with little extra input, recall letters and enquiries to the NHS about underpayment of fees.

All this can be achieved with a single PCW computer. We reached the conclusion, therefore, that a system running in a complementary role to conventional record keeping and appointment systems would provide a truly effective and economical solution. We set about developing such a system.

Writing the system in our spare time took us about 12 months. During that time we began to realise that we were creating a high standard professional package that would be useful to other dental practitioners and thus have commercial possibilities.

The practical problems of producing the manual and packaging then came to bear. There were many screens included in the guide which added to the problems. We considered options such as renting an Apple Macintosh and a laser printer, but ultimately we used a combination of PCW, LocoScript, photo-reduction and ordinary litho printing. The whole thing was bound in a screen printed ring binder to produce a really professional result.

Parting shot

My staff and I have now been using our system for some months with great success. Our newly formed company, 'Practice Systems Limited', has started to market the software as 'Fee Manager' and the first users seem to be delighted with their new systems. We took a great deal of trouble to try to ensure that the system is easily used by all members of staff by using conventional notation and abbreviations to enter treatment details.

Despite the combined computer and dental expertise of our partnership, marketing people tell us that simply building a better mousetrap does not guarantee cleaning up the mousetrap market. In other words, just because our software is the greatest thing since painless extractions it doesn't automatically lead to success. Sales and marketing are vital, and this is one of the most exciting and challenging aspects of a new business.

We believe that it is no longer good enough to indiscriminately throw botched databases at dental practices and hope that they will change to accommodate them. We believe in pragmatic computing. If it doesn't save you time, money or trouble then it's not worth having!

EXIT

Are you a case?

Has your PCW revolutionised your life? Traumatised it? 'Case In Point' is a regular feature of of 8000 Plus and we are looking for readers with interesting experiences to relate. If you use your PCW for something more than just LocoScript, why not share your thoughts with a waiting world?

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LETTER OF PROTEXT

Leading by example, Rob Ainsley examines how Protext might handle a tricky mailshot problem.

The situation: you have to write letters to all the members of your Avant Garde Icelandic Music Club urging them to come to an important concert. First, you must have a file somewhere consisting of the names and addresses. Though called a 'data file' it's a normal Protext file with one item per line – name, town, postcode etc. In addition there might be other information such as the member's title (Mr, Mrs or Ms etc, or a dash if you are on first-name terms) and a list of each member's favourite composers. To standardise the addresses, assume the format is as follows: first name, surname, title, up to four lines of address, town, county, postcode, and favourite composers. If there are less than four lines of address, then by putting exactly one blank between them and the town (which can't be blank) you can make sure Protext knows where to find the name of the town, as described below.

One blank line exactly should separate the end of one person's entry from the start of the next. Your data file will look something like the example on the left.

Suppose this file is called ADDR.DAT. You can now make up your mailmerge letter on the same disc as the one with your address file.

Take a letter

Assume for now that the only personalising you want to do is to have each recipient's name and address on the left near the top of the letter, and have their first name after the "Dear". Set up a document called CONCERT.LTR say with the following at the top of the file:

```
>df addr.dat
>rv name surname title
>rv add1 add2 add3 add4
>rv town county
>rv postcode composers dummy
```

Any line with an angled bracket on the left hand side is a 'stored command' and is treated by Protext as an instruction, not a line to be printed. All your usual stored commands to set up the headers, footers, margins and paper types should also be in the file. For mailmerging runs, `>cp on` (continuous paper on) is needed to set the printer up for continuous stationery.

First, 'df' tells Protext to look for a file called ADDR.DAT and read things from that file. The first 'rv' command will take the next three things it sees there ('John', 'Smith' and '-') and call them name, surname and title (rv stands for read variables).

The next rv command assigns the four lines of address to 'add1' to 'add4', and the next makes 'town' equal to London (county is blank), and so on. The 'dummy' is needed to make Protext skip the blank line to get to the next person's details.

When Protext comes to do this for Dr Jones' record things will be a bit different. Name, surname and title will be OK but add2 is blank. When 'rv' sees a blank, it gives up trying to read the rest of the variables in the line, so add3 and add4 are forgotten about. Protext moves to the next rv which assigns the town and county, then reads postcode, composers and dummy with the next. You shouldn't normally have two blank lines together, so if 'composers' is blank, then you don't have another blank for the dummy. Otherwise Protext thinks the first blank is the end-of-record marker, gets out of step and thinks the next person's name is blank.

Outlook variable

Now you can type the text of the letter, and if you put the name of a variable between two `&` signs, Protext will substitute the current value of the variable – ie. in the first letter when it sees `&surname&` it will print 'Smith'; at `&postcode&`, it will print 'BA5 5ET' etc. So, continuing from the above, your letter might read something like:

```
Avant Garde Icelandic Music Club
7 Seoul St
London EC3A 5YK

February 5th 1988

&name& &surname&
&add1&
&add2&
&add3&
&add4&
&town&
&county&
&postcode&

Dear &name&,
Just to tell you...
```

etc. Note that in printing the address Protext smartly misses out blank lines, so that Dr Jones won't have any gaps in her address – add2 to add4 will just be omitted.

Save trees

With your letter complete, you could enter the command `print` (or `p`) for draft quality and `printq` (or `pq`) for high quality, and Protext would start merrily churning out letters one after the other, working through ADDR.DAT until it could go no further.

However, the trickier the mailshot you are doing the more likely it is that you've got someone's name where you meant the street, or made some other foul-up. An astoundingly useful function of Protext exists for you to print the lot to the screen first – that way you can see each letter being made up and can check that all the names and addresses are in the right place, saving all that wasted paper if there's a mistake.

Just enter the command `ps` (print screen) and you'll see each letter being written before your very eyes. If anything looks wrong you can press [STOP], go back to the address file and amend it until the letters print out OK, and you can then `pq` to get your hard (but fair) copies. Before printing out anything, to screen or paper, you should `save` the letter and address files.

Get personal

This is all very well and is a genuine mail merged letter, but merely scratches the surface of Protext's depths. To make the letter more sophisticated, it might be nice to have some flexibility to the content. You may have realised that in the layout of the example just given, if you don't know someone's first name your letter looks very silly – an addressee 'B. Zimmerman' would be greeted as 'Dear B.'

Using the same address data file as before, you can arrange to have people you know well addressed as "Dear John" etc, but others as "Dear Dr Jones", and to include details on transport to the concert venue for those living outside Bristol.

To handle the first point you'll need to make use of that 'title' variable that mysteriously never got used before. Instead of the line "Dear &name&" in the letter, have the following:

```
>if title="-"
Dear &name&
>el
Dear &title& &surname&
>ei
Just to tell you...
```

and so on. When the condition after an `if` is true, Protext prints everything between that line and the corresponding `>ei` ('end if') line. Otherwise, the line following `>el` ('else') is printed – so here, all names with "-" for the title have the first name printed after 'Dear'; otherwise Protext prints the title (Dr, Mr, Ms, Col., etc) and the surname.

To get 'Dr C. Jones', etc., for the addressee's name and address, you can use the routine

```
>if title="-"
&name& &surname&
>el
>sv initial=name[1]
&title& &initial&. &surname&
>ei
```

The 'sv' command sets the value of a variable and the '1' in square brackets gets the first letter of the variable it's attached to, so here a new variable called 'initial' is created with a value of the first letter of 'name'. Hence 'Catherine' becomes 'C' followed by the full stop after `&initial&`, and the whole line would read 'Dr C. Jones'.

Now for the transport details. At the bottom of the letter you might have:

```
...and I look forward to seeing you there.
>if town<>"Bristol"
   The Concert Hall is five minutes' walk north
from Bristol Temple Meads station...
```

This ensures all those people at addresses not in Bristol get directions to the concert hall – <> is Protext's way of saying 'not equal to'.

Stay composed

To get the maximum support for your concert it would be nice to personalise the letters a bit more – for example, you could mention in the letter any pieces being played by each member's favourite composers.

Suppose that, in addition to Eriksson's sonata for half a piano there are also works by Leosson and Sigurdsson. So, for John Smith's letter, the first paragraph should end:

```
... and works by Sigurdsson.
```

For Dr Jones, who doesn't like any of the featured composers, it should end

```
... and other works.
```

To insert this text into the *middle of a paragraph* by a simple stored command isn't possible, as the stored command, and hence the text following it, always has to start on a new line.

You can, however, insert *variables* into the text anywhere – as was done with the names and addresses – so to get round this you have to create a variable (called 'blurb' say) whose contents are the required composers' names (or "other works") and insert that.

After the 'rv' line, a series of commands like the following will have the required effect:

```
>sv blurb="other works"
>if "Sigurdsson" in composers
>sv blurb="works by Sigurdsson"
>ei
```

followed later by a paragraph in the letter reading

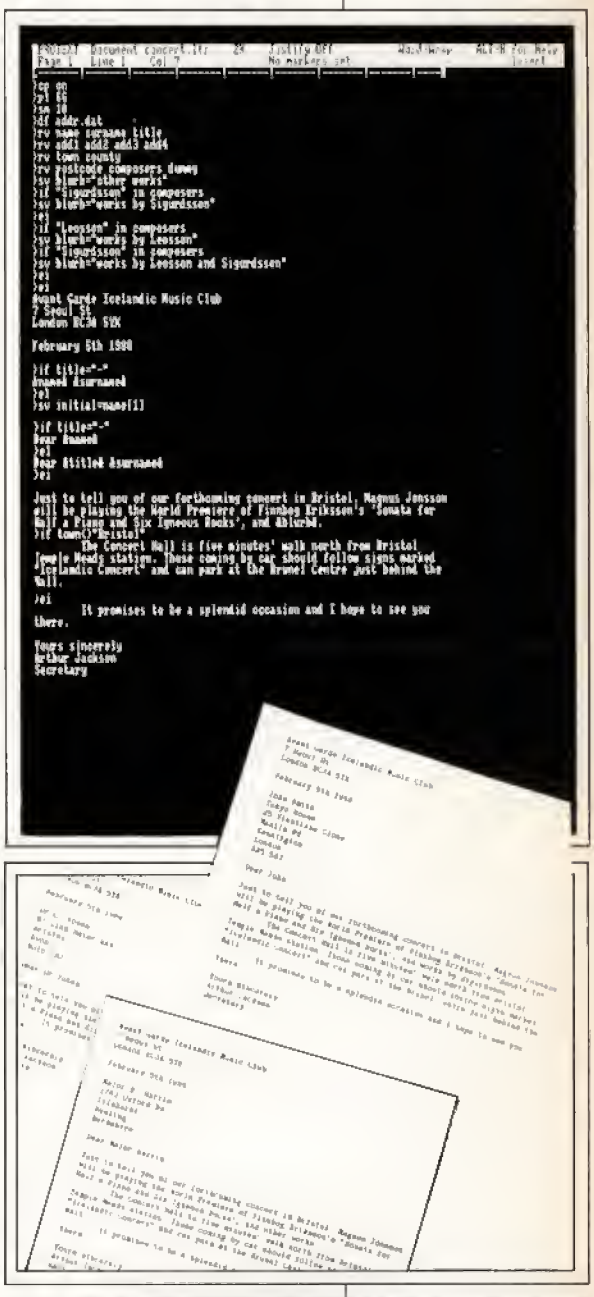
```
... "Sonata for
Half a Piano and
Six Igneous
Rocks", and
&blurb&.
```

Here the 'sv' command makes 'blurb' equal to the text "other works" first, but changes it to the appropriate name if it appears in the addressee's list of favourites. The routine uses the `in` function, which is fairly self-explanatory (`notin` is sometimes useful as the opposite of `in`.) To cope with all possibilities several statements like this will be needed.

The first paragraph of the letter should then have the optimum eye-catching effect for each recipient. And don't worry about the formatting; Protext takes care of that automatically.

Once you've checked all is OK via `ps`, load your continuous paper, start printing properly with `pq` and off you go for a walk and a nice glass of Perrier water while Protext does the hard work.

EXIT



The whole truth

There is another command to read variables from a file, 'ru' rather than 'rv'. If you use 'ru', a line from the data file is assigned to each variable whether the line is blank or not. This can be useful, particularly if you have created your data file from a database program.

Nameist prejudice

You might find once you've used rv to read someone's details off the data file that you don't want to send them a letter – maybe the person is a member of your family, all of whom belong to the club.

Suppose you include the stored command

```
>sk surname=Bassingthwaite
```

or whatever your name happens to be. The 'sk' command means the current person's letter won't be printed if the following condition is true, and Protext will move to the next set of variables.

Naturally, the 'sk' line has to go after the 'rv' commands so that the correct surname is known, but before the first printed line of the letter. All Bassingthwaites will be missed off the mail merge list. If your family name is Smith, you can't use this trick so easily.

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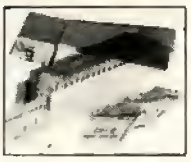

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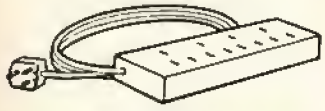

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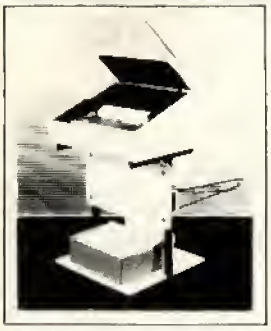

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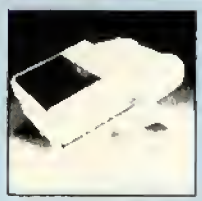

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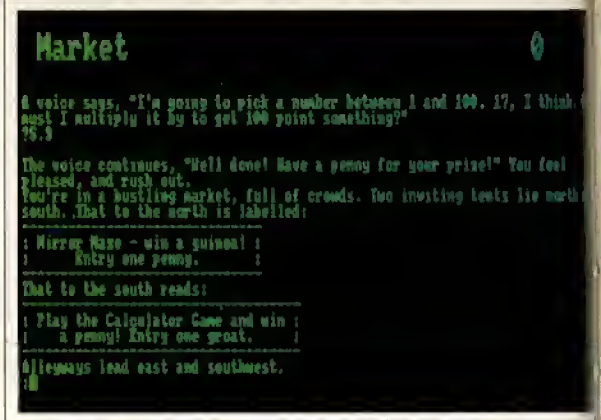
GIANTKILLER

£14.95 ● Topologika (0733 244682) ● All PCWs

Mathematics... if there's any subject guaranteed to bring a chorus of groans from all around, it is this. Much time and money has been invested over the years in trying to make the subject come alive, ever since the days of Frankenstein. 'Giantkiller' is a 'maths adventure' for age 10 upwards, which might just have succeeded.

An adventure game based on mathematics sounds as likely as a machine code listing made into a musical. But don't let the mathematics tag frighten you off: boring topics are presented as ingenious puzzles in the course of the game, not as abstract and disconnected questions. For example, problems such as "which of the following shapes tessellate – triangles, squares, pentagons, hexagons, octagons, decagons?" are presented in the Giantkiller game by asking you to escape from pursuers across a pool of acid.

On hand you have heaps of acid-proof tiles of various shapes – triangles, squares, five-, six- and eight-sided tiles etc – and you'll soon hit on the idea of covering the pool with them and walking across. Ah, but they've got to fit together perfectly, haven't they, or the acid will come through, which means... and after a bit of drawing and mucking about with shapes you'll find that triangles, squares and hexagons do that, but the others don't. You've answered the question above but done it naturally and had the fun of solving a problem for yourself which actually has a meaning and an end result.



▲ Some of the puzzles to be solved on the way to winning that magic bean

Has beans

The adventure is loosely based on Jack and the Beanstalk, with the the player or players taking the role of Jack (or Jackie). As the hero you have to go to market to buy a pig for your Mum; all the pigs have been sold, but by entering a series of competitions you can multiply your groat into a magic bean. One is a mirror maze; another is a competition to see if you can put eighteen bottles in a six-by-four crate

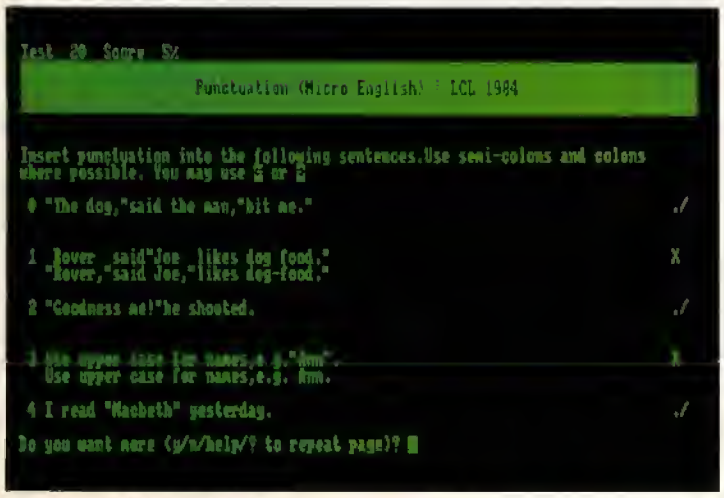
MICRO ENGLISH

£24 ● LCL (0491 579345) ● All PCWs

English is a very funny language with a patently ridiculous way of spelling words. 'Hero' takes an 'e' in the plural, for example, but 'banjo' and 'solo' don't (though even one banjo solo is usually one too many). 'Hearth' and 'dearth' are pronounced differently. Without the confusion caused by the apostrophes in its, it's, your, you're, whose and who's, the Times would have nothing to put in its letters column.

Micro English is described as a complete English language course for O-level self tuition or revision. The idea of using your PCW as a teaching aid for your college, yourself or your clamouring offspring is an attractive one. With Micro English you can, according to the booklet, test yourself on and revise punctuation, spelling, vocabulary, figures of speech, précis, commonly confused words, irregular plurals, summary and comprehension, all in a style closely modelled on the O-level examination (as it used to be). Your PCW impassively quotes your mark and time taken for each exercise for you to monitor your progress without embarrassment.

Micro English runs from BASIC, and after getting the familiar 'Ok' message you insert your program disc and type `RUN "MENU;` after the title screen you are given a menu with a choice of twelve areas on each side of the disc to be tested on. Also provided is an audio cassette which links in with the programs on disc.



▲ Nostalgia for all readers over sixteen

Cloudy periods

The punctuation section is a little dubious. A few basics are explained first and on subsequent screens you are given a list of sentences to punctuate – though the initial explanation contains at least one incomprehensibly punctuated sentence (it says of commas that they "are also used to separate indirect speech from direct speech,for example,the 'he said! from what he said.") The test sentences to be punctuated are fair enough but it expects no spaces after commas, which is rather unconventional, and isn't even consistent about spaces after full stops.

so that every row and column has an even number of bottles (trickier than you'd think).

But is it a game?

This is an educational game, not a professional adventure program; all the commands you type in have to be very simple (usually just directions: N, S, E, W etc) and there's none of the 'intelligence' of, say, the Hitch Hiker's Guide to the Galaxy, where your commands can almost be normal English sentences.

But it's fun, and the mathematical content is very good. Not only is there plenty of chance to develop visual and spatial skills from the mapmaking necessary to find your way round, but the puzzles are varied, cleverly integrated into the scenario and enjoyable, and would all serve as a starting point for further activities in a classroom.

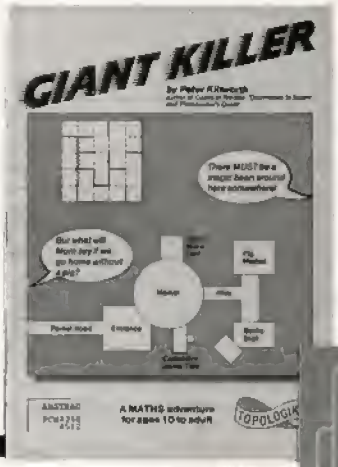
The progression of the game is virtually decided beforehand and there's only one 'solution' – great because it makes the thing virtually foolproof and ensures weak players get carried along and don't lose interest, though it means as an adventure it's a bit restricted.

On planting the magic bean you can climb up to the Giant's castle and get the goose which lays prime eggs (OK, an awful pun, but a neat way of working in some stuff about prime numbers). If you successfully negotiate that there's still a lot more exploring to do, in a dungeon under your house and over a chasm down the road. Any time you want help you can call your fairy godmother for advice, a neat way of personifying a help screen!

There's quite a range of subjects covered in the puzzles encountered: calculation, topology, time and space, logic, prime numbers, elementary number theory and so on, but all plausibly occurring in context.

This game would be an excellent Christmas present (and a sneaky way of slipping in some mathematics practice) for any pre O-level students who have access to a PCW, or for their parents. There's a complete worked solution in the handbook so you can keep that secretly for yourself if you want to impress your kids with your ability to solve everything.

Being able to finish the game with a maximum 250 points may not make you much more likely to pass the GCSE but the great thing about this game is that it contributes to the demystifying of mathematics, makes the subject mean something, and can actually be fun.



Topology note

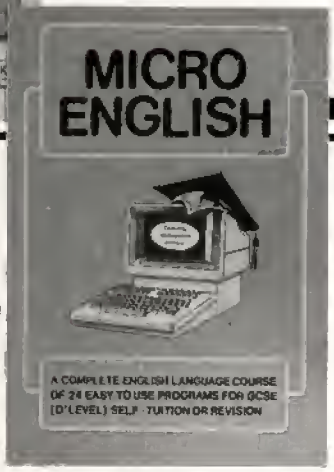
Topology is the branch of mathematics which proves that, for example, only four colours are needed to shade in any map of the world so no neighbouring countries are the same colour. Mathematicians didn't believe this fact until the 1970s, although they proved it a hundred years ago for doughnut-shaped planets.

PLUSES
- Puzzles plausibly integrated into scenario
- Progression of game is simple and well-defined
- Plenty of starting points for further work
- Mathematics made fun!

MINUSES
- Program understands only extremely simple commands
- Saving a position takes a move, which can be fatal in hectic situations
- Won't be of particular help for exams

RANGE OF FEATURES ■■■■■ PERFORMANCE ■■■■■
EASE OF USE ■■■■■ DOCUMENTATION ■■■■■

8000 PLUS VALUE VERDICT ■■■■■



There are two spelling sections, which use the supplied cassette tape. Words are read out on the tape (examples being 'conscious', 'flamboyant', 'bicycle', 'cupboard', etc) and you type them onto the screen; the PCW charts your running percentage score and tells you how much time you've taken (but it would have been nice to see the time quoted in minutes rather than seconds – knowing you've done a comprehension in 1649 seconds doesn't help much. The clock seems to run a bit slow.

Expletive deleted

One major problem is that the delete key doesn't appear to work. You might make an innocent typing error on a spelling test and get marked down because you can't correct it, try as you will. In fact, there is a way to delete: a capital D has been employed as the delete, which causes all sorts of confusion if you like to work with Shift Lock on: try to type in ADDRESS. It seems rather odd to assign the delete function to a capital letter in a spelling program when other keys are available (the one marked 'DEL', for example), and even odder to make no mention of this at all in the manual.

There are also vocabulary tests, a straight word-equals-which-one-of-four-phrases (or vice versa) multiple choice. For 'impartial', for example, you're offered 'to become known','impossible to overcome', 'favouring neither side', or 'no law or order'; it appears the alternatives are chosen at random, and there seems no attempt to make them all the same part of speech – verb, noun, adjective etc – as the test word. Also, questions you've got right already keep coming back, and there's no filtering out.

Summary

The main plus point to this program is the facility to list and change the data files for each exercise – these files are unprotected – and insert your own examples. As well as being easy to do (and fun) it means you can personalise your package to suit your requirements – if your son needs practice on his apostrophe's or your daughter on her speling you can give them as many new exercises as they can handle.

This is actually quite a handy little package. The design is a bit iffy and there's no excuse for not mentioning how to delete letters in the manual, but apart from that it could prove be a useful tool.

EXIT

Linguistic note

The English language is a hybrid of three Germanic dialects (Jutish, Saxon and Anglian), superimposed on indigenous Celtic, with a lingering element of Latin, subsequently influenced by Norse, Danish and then Norman French; no wonder the spelling is inconsistent. It has a larger vocabulary than any other – about half a million words – and is the most widely spoken language in the world, with around 400,000,000 speakers.

PLUSES
- Simple and easy to use
- Can adapt it to your own requirements
- Sticks to O-level style

MINUSES
- Very silly way of deleting letters, not even mentioned in the manual
- Punctuation inconsistent
- Used questions recur

RANGE OF FEATURES ■■■■■ PERFORMANCE ■■■■■
EASE OF USE ■■■■■ DOCUMENTATION ■■■■■

8000 PLUS VALUE VERDICT ■■■■■

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The idea behind Softstrip is very similar to that behind those supermarket bar codes. Despite having brains the size of planets, computers are useless at reading simple price tags, and up till recently (and still in some old-fashioned shops) the assistant had to punch in the prices manually in to the till. However, now all your brown rice and fresh pasta has the price bar-coded, in a form that the till's computer can be taught to read, making life more pleasant for everyone.

Softstrip can turn any file – a LocoScript document, a BASIC listing, data from your spreadsheet – into a series of strips of bar code-like dashes. These strips can be photocopied, folded, dropped into a mug of coffee, dried out, sent by overland mail to Ulan Bator, and still be perfectly readable at the other end by someone who has a Softstrip reader, which briskly scans the strips and writes the information back on to a file on disc. If you have to send the same software to a lot of people and/or don't like risking discs in the post, it could be a godsend.

▲ A mystery Mallard BASIC listing on a full size Softstrip

Reading and writing

There are two components to the package, a disc with the reading and printing programs, and the scanner unit itself. Making your software – say a listing from 8000 Plus – into strips is easy. With CP/M running you just insert the disc, enter `SUBMIT SSM`, give the drive and name of file you want to encode, insert your disc, and the strip prints out neatly on your ordinary PCW printer. There's one strip for each 823 characters of file, and each strip takes about two minutes or so to print out. There's a blob and a bar with a number by each strip; these are lining-up marks and reference numbers for the strip above that.

If you want to read a strip you have to connect the softstrip reader up to your PCW via an RS232 interface; once done, reading a strip is reasonably easy. After typing `SUBMIT SSR` the screen prompts you to insert the paper in the reader and after reading the first strip asks for the filename and drive to save it to. It then prompts you as it reads second and subsequent strips until the file is read. Each strip takes around thirty seconds to read.

The reader sits flat on top of the strip sheet, which you have to manually position aligning those blobs and bars in the right place – but you don't have to worry about it being out of line and getting a load of gobbledegook read in; the reader can tell if something's out of place and will ask you to re-align the strip. There's a complex system of checking numbers built in to the dots too, so it's extremely unlikely that any reading errors would make it through to the final version saved on disc without being spotted and amended .

Soft, strong and very long

The strips themselves are pretty robust. Coffee was spilled under laboratory conditions onto a strip which was then dried out over a convector heater. The reader happily scanned the strip and wrote the file to disc error-free. Folding the paper with sharp creases didn't have any adverse effect either.

Photocopied sheets are also quite acceptable, which of course is the main advantage to any club sending listings out. The copy must be quite clean and not reduced in size . Copies done on a light setting may not be read so it's a good idea to experiment with some of the darker settings and check they read OK before running twelve thousand copies.

Strip clubs?

The potential for this PCW adaption of the Softstrip system is enormous. Clubs, computer user groups, or companies with the ubiquitous PCWs could send batches of software to each other through the post and even include software in mailshots; compare the cost of a thousand photocopies to a thousand discs. In theory, forward looking magazines will print their program listings pages in strip form.

Some years ago owners of the BBC Micro could buy a similar bar code reader for a significantly less than £100. The device never really caught on, and although Softstrip is technically superior (the printed codes are more compact and error-proof) it does seem at least £100 overpriced if it is to make any impact on the PCW market.

PLUSES
- Strips can be folded/photocopied/posted
- Could be a godsend for program listings typists
- Good error checking on the printed strips

MINUSES
- It's expensive
- Needs a large user base to be viable

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DIY DTP

Beginning a short series on giving your desktop publishing that professional touch

Desktop publishing is the in thing. Impressive though it sounds, it's a rather vague term covering everything from photocopying a LocoScripted office memo for five pence a sheet to the page layout of a money-spinning glossy magazine. To most PCW owners DTP means producing newsletters – but do you really need specialised software, and how much does the whole thing cost?

Of course you don't *need* a PCW to produce newsletters. Your local High Street print shop will be able to lay pages out for you; you just have to supply the text, handwritten in biro if you like. This costs, though, £15 upwards per page; so even after two pages you've spent more than the cost of a PCW program which would enable you to do the page layout yourself – make up headlines as large as you like, juggle text around for the best arrangement, and manipulate graphics boxes with simple pictures and logos.

PCW quality won't be sufficient to compete with the professionals, unless you're prepared to spend several thousand pounds on equipment; headlines and large letters tend to be jagged and 'boxy' and the instant graphics (or 'clip art') supplied won't be works of art. But for DIY publications – club, community or company newsletters, notices, posters, and so on – DTP is not only an inexpensive way of producing perfectly acceptable results, it's great fun too.

Lay it on me

You can just use LocoScript to make your news sheet – you don't actually have to buy a specialist DTP program. If your publication is to be a straight newsletter composed almost solely of text it could well be adequate, and you could always use good old Letraset rub-down lettering, available for a few pounds a sheet from your local stationer's, to make your headlines.

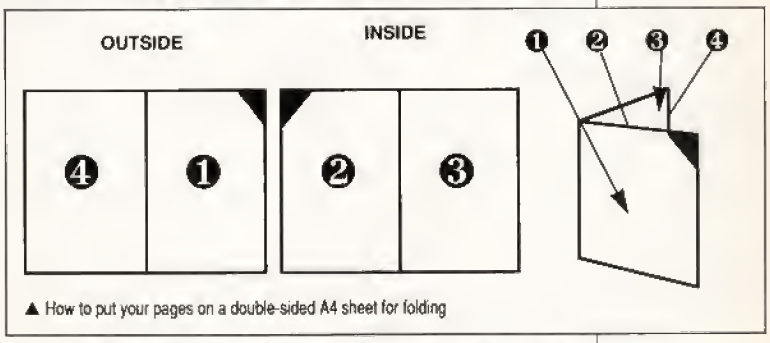
The first thing to do is decide on the paper size you are going to use for your publication. Most photocopiers use A4 paper, so that seems a sensible standard. In case the paper size conventions confuse you, the important ones are A3, A4 and A5. Quite simply, if you fold an A4 sheet in half you get an A5 sheet. A3 is the size of two A4 sheets joined on their long side.

This means that, given access to a photocopier which can do reduced size copies, you could reduce four pages of A4 each to A5 size and they would then all fit on one double-sided sheet of A4 folded pamphlet-like in half. This is a very common format, and has the extra bonuses of reducing reproduction costs, saving trees, and seeming to smooth out jagged edges in your graphics. LocoScript standard text looks fine when printed half size, but superscript and subscript text can be hard to read at 50%.

All you have to do is print out your text and, with some scissors and glue, paste it down onto a master sheet until everything fits in the right places. Then take it off to your copy shop who will do the rest for a moderately extravagant fee. Enlargements or reductions are fine as long as everything on the page is reduced or enlarged the same amount.

Difficulty with printing in columns, lack of large text sizes and absence of graphics could be a problem on a more ambitious project though – which is where one of the currently available DTP packages come in.

Each of them is like an electronic layout pad: you can cut one of the graphics pictures out of the supplied library, make up your headlines using the supplied large text fonts, and read in text prepared by LocoScript or some other wordprocessor into columns. You can then move these items around until the layout looks right, print out your masters (you need the benefits of the 8000 series dot matrix printer, of course) and get copies made.

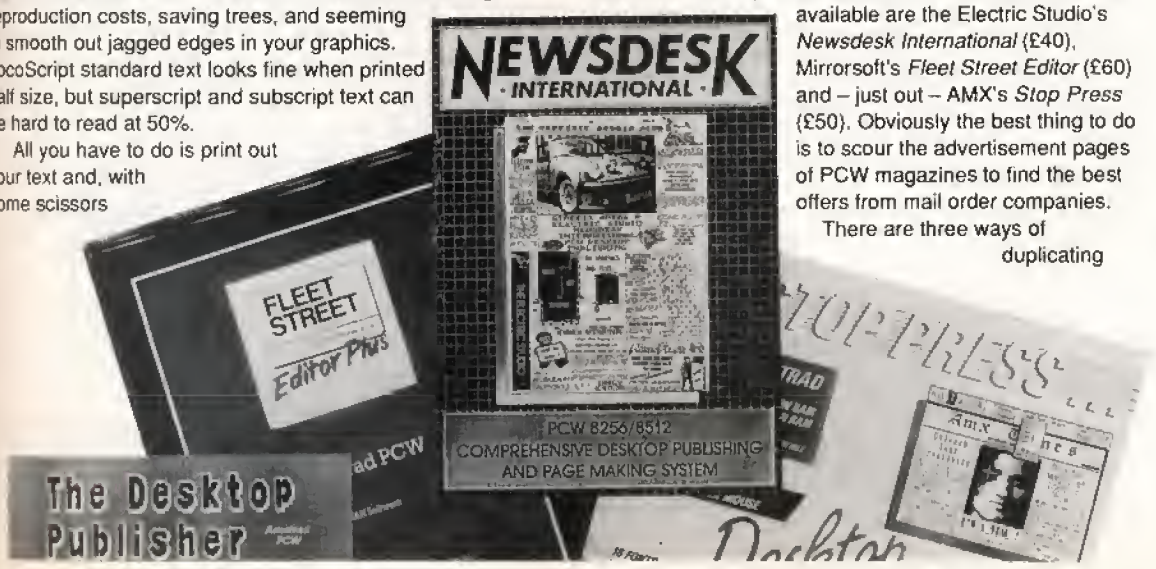


▲ How to put your pages on a double-sided A4 sheet for folding

The cost

If you have decided that simple LocoScripted text is not enough for your mega-publication then the first thing you need is obviously your DTP program, the cheapest being Database's *Desktop Publisher* for £30 ish. Other packages available are the Electric Studio's *Newsdesk International* (£40), Mirrorsoft's *Fleet Street Editor* (£60) and – just out – AMX's *Stop Press* (£50). Obviously the best thing to do is to scour the advertisement pages of PCW magazines to find the best offers from mail order companies.

There are three ways of duplicating



Ready, set, go

For around £10 per page you can get LocoScript documents properly typeset – you send in your disc and get back your headlines and text set out magazine style. One company providing this service is Thameslink, Tel. 0753 863356.

your publication – photocopying, stencilling, or 'proper' printing done by your friendly local High Street printers. Which you choose depends on a variety of factors, mainly the number of copies you want to produce, and how much money you have at your disposal; on a basic level, if you're talking tens or hundreds of copies a photocopier would be cheaper than printing, but printing gets much cheaper if you're thinking in thousands, and of course the quality can be much better. If you have access to a stencil duplicator, this would be the cheapest option of the three.

Probably the quickest and most convenient setup is to photocopy. Typical charges for double-sided A4 copying would be something like 20p per sheet plus VAT, and for double-sided A3 30p plus VAT, though, so if you're doing more than a few dozen copies this could prove expensive.

Costs at a glance

Some rough figures to help you decide the best way of producing your publication. If you're only planning on making 30 copies, obviously photocopying will be cheaper than printing, and vice versa if you aim to make twenty thousand. You can also decide how many pages your effort can afford to have – a folded, double sided A3 sheet makes four A4 pages; folded A4, four A5 pages

OUTLAY
LocoScript *or*:
The Desktop Publisher £30
Newsdesk International £40
Fleet Street Editor £60
Stop Press £50
Video digitiser £100
MasterScan £70

PHOTOCOPYING
Double sided A4 per sheet 23p
Double sided A3 per sheet 35p

DUPLICATING
Second hand stencil duplicator £200-500
Paper £3.50 per 500 sheets
Electronic stencil cutting £3 each

PRINTING
Double sided A4:
50 sheets: £20
500 sheets: £40
5000 sheets: £90
Photographs: £5+ each
Folding: £3 per 500 sheets

Old faithful

An option not to be overlooked is the trusty old stencil duplicator, your Gestetner or Roneo; the quality of output, if done properly, can be very good. It is possible to cut stencils directly with your PCW printer - the 9512 daisywheel will cut stencils no problem, and even the trusty 8000 dot matrix will work as long as you take out the ribbon cassette before printing as normal onto the stencil; however, you could well find that your printer head gets clogged up with wax eventually, and while it's possible to clean it with a bit of WD-40 or alcohol, general opinion seems to be that it doesn't do the print head much good.

A better way of getting your material onto stencils is to print out your pages onto normal paper complete with graphics, line drawings and so on, and then get a stencil cut electronically from each page – an advantage of this is that you can reduce your masters with a photocopier first. As long as there isn't too much solid black on the page they will reproduce the original dot matrix printed output very closely. Your local office stationer should be able to do this for around £3 per sheet.

The great advantage of stencil duplication is cost. If you have access to a duplicator then virtually your only outlay will be for paper – and you can get a ream (500 sheets) of A4 copier paper for around £3.50.

The cost of a reasonable second-hand duplicator can be anything from a couple of hundred pounds upwards – for large scale use a recommended model is the Roneo 865, which goes for around £500; if you want a new duplicator you'd be paying around three times that amount.

The disadvantage of stencilling is that it can be tedious and messy setting up the machine, running off all the copies yourself and then folding and stapling the lot if required, but it saves you money.

For large runs – many hundreds or thousands of copies – proper printers will be able to print your publication relatively cheaply (by a process called offset litho), with very professional looking results. Fifty copies of double-sided A4 would cost you about £20, but five hundred under £40; and five thousand would be around £90, only 2p per copy!

Professional printers can offer various extra options. You could include photographs, or have a variety of ink colours for a tenner each. Either of these would make a simple newsletter look very impressive.

In the picture

Of course, apart from the text the next most important thing on your page will be illustrations. DTP packages all come with a variety of 'clip-art' – stock symbols like road signs, paper boys, aeroplanes etc. which can be added onto your page to liven it up. These images may be of limited use, and the quality won't be sufficient to make the graphic the main point of interest on the page. Often the simplest thing is to leave a gap of the right size on the page and then glue on the picture just before you go off to the copy shop.

In general, any simple drawing in black in will photocopy perfectly well, but photographs will not. This is because photos are made up of shades of grey and can't be reproduced on a printing machine which can only do black ink. The standard trick is called 'screening' – look at any newspaper photo and you will see it is made up of dots. Each dot is solid black and the shades of grey are simulated by making the dots larger or smaller.

▲ A photo printed with and without 'screening'.

Your printer can do the screening of any photos you are using for a once-off cost of around £5 each, after which the screened copy can be photocopied normally. Copies of unscreened photos always look ugly with unnaturally high contrast and large blacked-in areas.

An alternative is a 'video digitiser', which enables you to take a picture from a video recorder (hence TV pictures, or even shots you've recorded yourself if you have a video camera) and produce a version made up of dots which you can use in your publication. Digitisers will set you back about £100, but shop around for package deals.

Digitised pictures give variable results – simple, high contrast pictures come out best, and complicated ones with lots of shades of grey worst. The advantage is that they'll photocopy well directly, although though the quality of proper screened photographs is so much better. If you are doing photos in a serious way it would be better to forget the digitiser.

MasterScan (reviewed on pages 58/59 this month) is a device which fits on to your print head, scans pictures or graphics, and stores them on disc. The results can be cut and pasted into your publication just like normal graphics. It would be good for using material from books or magazines but photographs or things on shiny paper don't come out too well. The same pros and cons apply for this as for the digitisers.

Gram masala

Paper comes in various weights (and hence thicknesses). The standard figure for photocopying use would be 80gsm (80 grams per square metre). Business letterheads tend to be on 100gsm, which is slightly thicker and tends to smudge in the PCW dot matrix printer.

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DR LOGO

The Guide at your Side

How to use this chart

As the concluding part to the 8000 Plus Logo series, here is a list of all the various commands (or 'primitives') that Dr. Logo on the Amstrad PCW recognises. There is not room to explain in full what each does, but there is enough information to jog your memory as you are programming.

Each entry has the keyword in bold. If the command expects extra information, some example inputs (not in bold) are listed with it.

Where a primitive is described as 'returning' a result, that result must be used in some way – eg. the result of `rc` could be assigned to a variable such as in `make "fred rc` – or an error will occur.

In general, wherever a number is given literally you could use a variable instead. For example, if you had a variable `fred` set to a value of 50 then `fd 50` and `fd :fred` are identical in effect. The exception to this is inside list brackets, [ ], where everything is treated literally.

Graphics screen/turtle

fd 50	move turtle forward by specified amount
bk 50	move turtle backward by specified amount
ht	hide turtle
st	show turtle
lt 90	rotate turtle left by angle specified (degrees)
rt 90	rotate turtle right by angle specified (degrees)
seth 135	set turtle's heading to the specified bearing
towards [50 50]	returns bearing of given dot. Use `seth towards` [*x y*] to point turtle at dot [*x y*]
pu	lift pen up (turtle movement doesn't draw anything)
pd	pen down
pe	pen erase (turtle erases previously drawn lines it crosses)
px	makes turtle erase where there is a line, draw where there isn't
setpc 1	set pen colour – 1 means green, 0 black
home	move turtle to centre screen ([0 0]) & bearing 0
setpos [50 50]	move turtle to specified co-ordinate
setx 50	changes turtle's x-axis position to that specified
sety 50	changes turtle's y-axis position
tf	turtle facts – prints out turtle's position etc
fs	full screen – screen devoted to graphics, no text window
clean	clears the graphics, leave turtle where it is
cs	clear screen, return turtle to [0 0] bearing 0
dot [50 50]	draw a dot at the given co-ordinate (doesn't move turtle)
fence	confines turtle to screen limits
window	allows turtle outside screen limits
wrap	turtle going off screen reappears on opposite side

poall	prints out all variables and procedure definitions
copyon	echo all screen text to the printer
copyoff	stop text echoing to printer
rc	returns next character typed
rq	returns next word(s) typed until [RETURN] pressed
rl	as `rq`, but returns words read as a list
noformat :fred ...	uncertain use (!) – seems the same as `pr`

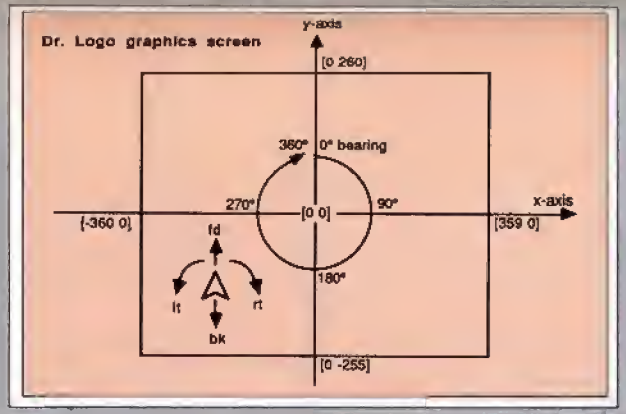
Words and lists

ascii "a	returns the ASCII value of first letter of word/list
bf [1 2 3]	returns all but first item of list/letter of word
bl [1 2 3]	returns all but last item of list/letter of word
char 27	returns character whose ASCII value is given
count [1 2 3]	returns number of items in list/letters in word
first [1 2 3]	returns first item of list/letter of word
last [1 2 3]	returns last item of list/letter of word
fput 1 [2 3]	joins first item to beginning of word/list and returns result
lput 3 [1 2]	joins first item to end of word/list and returns result
item 2 [1 2 3]	returns requested numbered item of list/letter of word (eg. 2nd item of list)
lc "FRED	returns lower case version of word
uc "fred	returns upper case version of word
(**list** 1 2 3)	returns a list of the following inputs
(**se** 1 2 3)	as `list` (Logo calls lists 'sentences' too)
piece 2 4 [a b c d e]	returns (in this case) items 2 to 4 of the list or word
shuffle [1 2 3]	returns a randomly shuffled version of list
word ("a "n "d)	joins together all the inputs and returns them as a word
where	returns location of item in list (use after specified graphics screen co-ordinate
emptyp [ ]	returns TRUE if the input is an empty list
equalp :fred 1	returns TRUE if the two inputs are equivalent
memberp 1 [1 2 3]	returns TRUE if the first item is a member of the list
listp :fred	returns TRUE if the input is a valid list
numberp 1	returns TRUE if the input is a valid number
wordp "fred	returns TRUE if the input is a valid word
namep "fred	returns TRUE if the input is the name of a valid variable
keyp	returns TRUE if a key is currently being pressed
:x = 50	returns TRUE if the two inputs are equal
:x > 50	returns TRUE if the first input is greater than the second
:x < 50	returns TRUE if the first input is less than the second
(:x=50) **and** (:y=50)	returns TRUE if both input conditions are TRUE
(:x=50) **or** (:y=50)	returns TRUE if either of the input conditions are TRUE
not (:x=50)	returns TRUE if the input condition is FALSE

Property lists

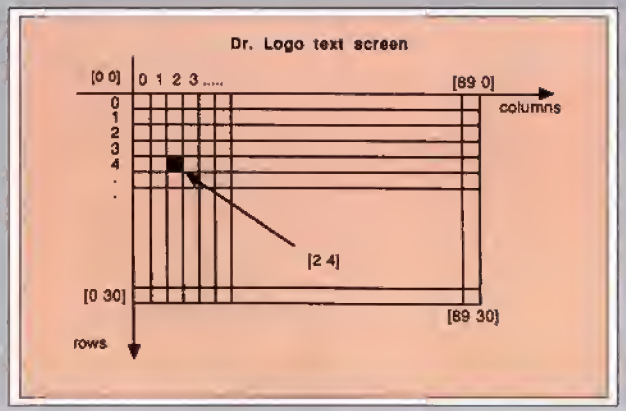
pprop "fred "age 45	'put property' – sets up 'fred' to have a property 'age' with value '45'
plist "fred	returns the current property list of 'fred'
gprop "fred "age	'get property' – returns the value of the named property (eg. 'fred's age' here)
glist "age	returns a list of all people/objects with a property 'age' defined
remprop "fred "age	removes the property 'age' from fred's property list
pps	prints out all property list pairs

dumps)



Text screen

setsplit 10	make the lower 10 (or whatever) lines of the screen text, the rest graphics
cl	clear text screen
cursor	display current cursor position
setcursor [5 8]	move cursor to specified column and row
ss	select standard screen split
ts	devote whole screen to text only
sf	screen facts – print out cursor position etc.



Output and input

pr :fred ...	prints out the item(s) then a carriage return
type :fred ...	prints out the item(s) without a carriage return
show :fred	prints out the item then a carriage return. Lists are printed with their brackets
po "fred	prints out the value of the named variable as "fred is ..."
pons	prints out all global variables in `po` style
pops	prints out all procedure definitions
pots	prints out titles of all procedures

Arithmetic

arctan 0.707	returns inverse tangent (in degrees) of value
cos 60	returns cosine of angle in degrees
sin 30	returns sine of angle in degrees
int 1.7	returns integer part of number
round 1.7	returns number rounded to nearest integer
quotient 9 2	returns results of integer division (eg. 4 in this case)
remainder 9 2	returns remainder from integer division (eg. 1 in this case)
random 100	returns random integer from 0 to number
rerandom	resets random number generator sequence
1 + 2	returns result of addition
2 - 1	returns result of subtraction
2 * 2	returns result of multiplication
9 / 2	returns result of floating point division

Procedures and variables

to fred :var ...	Starts definition of named procedure. List of its input variables follows.
end	ends procedure definition
local "fred ...	Restricts named variables to current procedure & sub-procedures – use in recursive procedures
make "fred 1	Set the named variable to the value given
thing "fred	returns the value of the named variable
pause	wait until the user types `co`
co	resume program after a `pause` command
label "fred	sets up a label for `go` statements to jump to
go "fred	go to the instruction following the named label
if *test* [*c1*] [*c2*]	if the condition *test* is TRUE then do command list *c1*, otherwise do command list *c2*.
op 10	exit the current procedure making the specified value the procedure's output
repeat *n* [*cmnds*]	repeat the command list in the brackets *n* times
run [*cmnds*]	run the commands in the brackets
stop	return to the previous procedure (or stop program if at top level)
throw "fred	passes control to correspondingly labelled `catch`. Use `throw TOPLEVEL` to jump back to command mode.
catch "fred	receives control from corresponding `throw`.

Conditional tests

(use with the `if` command to determine a course of action)

dotc [50 50]	returns TRUE if there is a dot at the

ed "procedure	calls up the Logo editor on the named procedure
edall	edits all known procedures/variables
edf "filename	edits the named file and then loads it into Logo
er "procedure	erase the named procedure definition
erall	erase everything from working memory
ern "fred	erase the named procedure
nodes	gives a measure of free space left
recycle	cleans up the internal workspace
changef "new "old	change file name on disc from 'old' to 'new'
defaultd	display current logged disc drive
dir "a:	list all Logo program files on specified drive
dirpic "b:	list all Logo picture files on specified drive
erasefile "filename	erase the named Logo program file
erasepic "filename	erase the named Logo picture file
load "filename	add the procedures in the named file to the workspace
save "filename	save the currently defined procedure to the named file
loadpic "filename	load the names picture file
savepic "filename	save the current screen as a picture file
setd "m:	sets the default disc drive as specified
error	prints out list of recent errors
bye	exit back to CP/M

Debugging

trace	display procedure calls as they are executed
notrace	turn `trace` off
watch	as `trace`, pauses at each procedure call
nowatch	turn `watch` off

Advanced miscellany

.contents	display all names Logo knows about
define "procedure [[*argument_list*][*instruction_list*]]	equivalent to `to...end`. Allows procedures to define other procedures.
text "procedure	prints out procedure definitions as expected by `define`
.deposit 65300 255	equivalent of BASIC's POKE
.examine 65300	equivalent of BASIC's PEEK
.out 245 1	equivalent of BASIC's OUT
.in 245	equivalent of BASIC's INP

Unimplemented

The following names appear in the list of known Logo commands listed out by `.contents`, but do not do anything(!): **paddle**, **pal**, **wait**, **tones**, **buttonp**, **setpal**.

Idea and material by John Connell

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NEVER MAKE MITSAKES

If you've ever tried to run a BASIC program, you ought to be reading these pages

As you will no doubt know there are never any mitsakes in the program listings in 8000 Plus. Well nearly never. And as also you know we always make things so clear it is almost impossible to get things wrong.

And yet strangely enough virtually everyone finds themselves staring at a blank screen or an unhelpful error message the first time they try to run a BASIC program. Here are one or two tips that might just save you several hours of heartache and hair-tearing as you try to find your BASIC mistake, whether it is a program written yourself or one you've copied from a magazine.

The best way to ensure that a listing will work is to type it in right. This is not quite as simple as it seems especially with one that seems to go on for several thousand lines, but it is worthwhile trying to be as accurate as possible while you are typing it in.

The first tip is to type everything in lower case (small letters). BASIC automatically converts all command keywords (PRINT, IF, NEXT etc.) into capitals, so that means that 'print' will be changed to 'PRINT' when you LIST the program to the screen, but if you have made a mistake (like 'pirnt' for instance) it won't change. One warning though: any text in quote marks ("" or '') should be typed in as it is printed, ie. upper case if necessary, or the program may go wrong.

When the listing is completed always save it by typing SAVE and an imaginative file name in inverted commas. If you don't save, the listing will be lost when you go back into CP/M.

Remember that if you make any changes to the listing (correcting a mistake for instance) this also has to be saved using the same filename or the old mistake will stay on the disc. Getting into the habit of saving corrections can save you hours of frustration.

Find the error

The first time you run the program the chances are it will break down. Sometimes it won't even start and it's a "back-to-the-drawing board" plod through the listing looking for mistakes. If it does go wrong the chances are you will get a helpful error message, which sometimes even gives you a clue as to what is wrong.

The most common to begin with is 'Syntax error in line ...'. This is quite a useful error message since this means that BASIC has noticed a typing mistake in that line which it just cannot get over. Check this line carefully. What appear like little details (for instance the difference between a colon (:) and a semi-colon (;) are pretty important to BASIC and even a comma missing can really upset it.

If you get a syntax error BASIC automatically puts you into 'edit mode', allowing you to move about the line using the cursor left and right keys, deleting and making your changes. When you finish press [RETURN] and re-run the program.

If you get a different error message you will have to do a bit more work to track the mistake down. If your typing error is not serious enough to make the program stop as soon as it comes across it, then BASIC will struggle on until finally some gross inconsistency arises that makes it fall over. It won't report any error until it finally stops, so the line number

Follow that variable

One of the most difficult mistakes to find is a problem with variables. These are words or letters often ending with a $ or a % that can take on a different values while the program is running – if you type them into BASIC in lower case letters they will stay in lower case when LISTed out, as opposed to the main keywords which will be capitalised.

If you are writing the program yourself, especially a short program where space is not important use names for the variables that are self-evident – `amount`, `name$`, `total%` etc.

If you are typing a listing try to work out what is supposed to be in each variable. Variables are set up might be set in a statement like `line%=1` or through an INPUT statement – `INPUT "What is your name";name$`.

You can check what the current value of the variable is at any moment by stopping the program and just typing at the 'Ok' prompt `?number%` or `?name$` or whatever the appropriate variable is ('?' is just an abbreviation for the PRINT command). Alternatively you can temporarily add extra lines into your program to print out a few variables at strategic points.

Up will pop the value that it holds at that time. If it gives a value of 0 or just a blank line at a time when you think it should have some value you must have mistyped the name somewhere. Read through the program checking every time that variable is mentioned. Often the mistake is many lines away.

If you have a text editor program like NewWord or Protext, you can use it to create and edit BASIC programs. This means that you can use the 'Find' command to look for occurrences of a variable name, do bulk renamings etc. Make sure whenever you save your program from BASIC that you add a ,A after the name (eg `SAVE "FRED",A`). This saves the program in ASCII form so that your text editor will be able to read it.

Errors you have loved

Here are examples of some of the most common error messages that BASIC can give you, and hints on what to do to rectify matters.

```
Syntax error in 10
Ok
10 PRINT CHR$(27)+"E"+CHR$27)+"H"
```

`Syntax Error` – there is a typing error in this line that BASIC will just not accept. You go straight into edit mode because BASIC presumes you will be changing it. In this case there should be an opening bracket in the second `CHR$(27)`

```
Type mismatch in 30
Ok
edit 30
30 IF word$)3 GOTO 4000
```

`Type mismatch` – you are trying to use a numeric value where a string value is required or vice versa. Check for $ and % being mixed up in the variable name, and for quotation marks being missed out around strings. Here `word$`, which is a string, has been used where BASIC expects a number. It probably ought to be `word%` – a numeric variable.

```
Ok
run
Subscript out of range in 40
Ok
list - 40
10 DIM lin$(1000)
20 OPEN "I",1,"unsort":OPEN "O",2,"sort"
30 WHILE NOT EOF(1)
40 maxline=maxline+1:LINE INPUT #1,line$(maxline)
Ok
```

`Subscript out of range` – this is often caused by a mistake in a DIM statement which sets the size of an array, so check for a mistake there first. Can also be caused by a mistake in a FOR loop which goes round more times than you DiMmed an array it uses. In this example the variable was wrongly defined in line 10 (`lin$` instead of `line$`) but it didn't show up till line 60.

`Unexpected NEXT, WEND or RETURN` – BASIC can't understand why you have the command mentioned in that line. These tie up with the commands FOR, WHILE and GOSUB respectively so it means that these are missing or something has gone wrong with them. Check the lines with the FOR, WHILE and GOSUB statements in them too.

```
Ok
run
NEXT missing in 10
Ok
list
10 FOR i=1 TO 20:PRINT"Hang on a minute"
20 FOR j=1 TO 5000
30 NEXT
Ok
```

`NEXT or WEND missing` – BASIC has found a FOR or a WHILE and can't tie it up with the suitable NEXT or WEND to end the loop. Make sure you've got as many FORs as NEXTs, as many WHILEs as WENDs.

quoted as 'wrong' may not be where the real error is.

Most of the common messages and their causes are given on the example listing shown in the box. If it's a short program just type `LIST` and the listing will appear on the screen. If it's a long program just pick about 25 lines (about a screenful) round about the spot where the trouble is (for example, you can list out line numbers 200 to 450 by `LIST 200-450`) and look there first. If you find the problem in line 260 type `EDIT 260` and you can edit it.

When copying out listings, make sure you don't mistake lower case 'l's for '1's, or capital 'O's for zeroes. A mistake of this kind won't usually cause a Syntax Error, but will make your program go wrong in quite unpredictable ways.

Debugging your own programs

There are about another 100 error messages that you can be hit with which sometimes make sense, so they are always worth reading carefully. If you have made a mistake you can't find immediately it is invaluable to print out your listing on paper – using the command `LLIST`. In a long program with a lot of GOTOs and GOSUBs it is easier to follow on the path of the program on continuous paper rather than finding the right bit to display on screen.

Quite often your program is running but it just won't do what it's supposed to do. Remember that at any time you can press the [STOP] key – it will say "Break in.." and the line number if you feel that things are going wrong.

Have a look at the listing round about that point using the LIST command. You can continue the program from where you broke into it (type `CONT`) as long as you haven't actually edited any lines.

Your program may refuse to go to a GOSUB or GOTO or it may follow a path that you hadn't expected – all shown up by the line numbers on screen. A simple mistyping in the line number of a GOSUB command could make it "crash through" (technical term there) and miss the GOSUB completely or a simple wrong line number in a GOTO could cause untold confusion.

If it doesn't work as you want it is worthwhile whistling up the services of TRON – your friendly Trace On utility. All you do is type `TRON` before you run the program and this wonderful little facility lists on the screen the numbers of all the lines as you use them. You can stop TRON by typing `TROFF`.

You can also use TRON within a program – if you've narrowed your problems down to a particular area, put a line with the TRON command before and another line with TROFF afterwards, and you won't get deluged with rubbish from parts of the program you aren't interested in.

Stop that at once

If you are worried that the instructions in a particular line seem to be being ignored another trick is to to edit the line (EDIT 2000 or whatever) to insert `:STOP` at the end. The next time you run the program there should be an error message "Break in 2000". If there isn't, start being suspicious. And if it does stop it is a good chance to check the variables (see 'Follow that Variable').

Don't forget that you can add in extra lines to print out diagnostic messages like "now at line 140" wherever you like. This is the whole point of the BASIC line numbers – to put a line in between line 100 and 110 just call it 105 and it will be put in at the right place. To delete it after you've found the problem, just type `105` and press [RETURN].

We can't promise that following these simple rules will ensure that you will get every listing to work but even trying to get it to work will greatly increase your knowledge of Mallard Basic and it can be very satisfying when you get it to work.

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SATYR SATIRE

Feminist supporter Tony Flanagan enthuses over the month's new games, courtesy of Level 9 and Infocom

GNOME RANGER

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I'm one of those rare superbeings of the male gender that actually appreciates women for their minds and not their bodies... honest. How refreshing then to come across an adventure in which the heroine is – without putting too fine a point on it – marvellously grotesque, even for a gnome. Not only is Ingrid Bottomlow abgnomally short but her muscles make Frank Bruno's look like pickled onions. Now there's a real woman for you, eh?

As for her character, it's hardly the submissive, servile, obsequious 'yes sir, no sir' type that attracts the average male chauvinist. The fact that her parents hate the sight of her tells us much. Indeed, they hate her to such an extent that they have banished her from house and home.

They haven't just kicked her out, no, they've packed her off to witch country, certain that she won't be able to make it back. Such certainty stems from the fact that the wicked witch's cottage lies between beloved Ingrid and home sweet home. The object of the game is to drive Ingrid's parents to suicide by guiding her back.

The witch is clearly not someone to be trifled with. One of her main virtues is her ability to turn people to stone by the wave of a wand, something most politicians manage just by opening their mouths. There are, of course, other dangers, notably an eagle with a brood that is rather partial to muscle-bound gnomes.

The world Ingrid is banished to reveals typical fairy tale landscapes – stream, fountain, marsh and mountain, to mention just a few. These are rather baldly described even when you switch from brief to verbose mode. The pictures – which purists might well prefer to turn off – do aid the text in sustaining atmosphere. An initially cute feature, but one which quickly becomes irritating, is the repeated insertion of 'g' before every word beginning in 'n'. If this isn't gnerdish then I don't know what is!

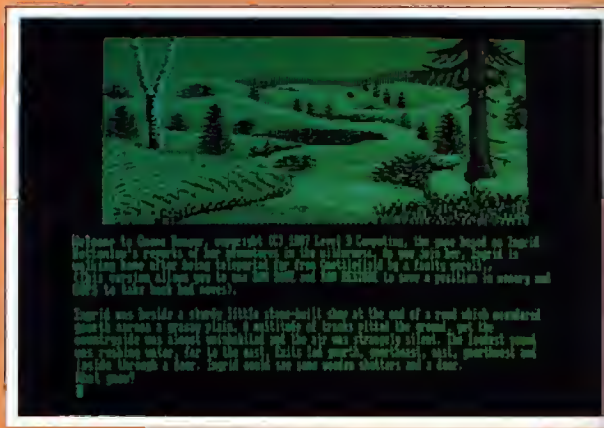
Guided centaurs

Ingrid also confronts a range of weird and and not so wonderful beings, including a woodland nymph, a centaur named Cap and a llama. With varying success, such characters can be put to work by carrying out a variety of tasks, saving Ingrid both time and effort. A pack of dogs, for example, might help you track down the unicorn. After all, gnomes are renowned for their weak sense of smell.

As Ingrid explores the countryside, there are a number of objects which she can exchange at the Centaur's shop for goods that she might find more useful. Indeed, Cap's shop is stocked with a whole range of goodies, including a bunch of keys, a black rod and a lamp. 'Cap', by the way, is obviously short for 'capitalist' for the Centaur demands two items for every one you give him.

The game contains several time-saving commands, such as `GOTO` (taking you to your destination automatically but describing the route) and `RUN TO` (taking you to your destination but omitting the description). Unlike most adventures, map-making is not essential. Indeed most scenes have the full range of geographical exits which it would be very tedious to map out.

There is something quaint about Gnome Ranger, which, despite its imperfections, makes the game attractive. More importantly, its puzzles dangle plenty of carrots, most of which, frustratingly, turn out to be inedible. This is a very addictive adventure which might just send you gnutty!



PLUSES
- Some good high-level commands
- Compelling puzzles
- Light humorous tone

MINUSES
- Scenes lack detail
- The action is a little repetitive

ATMOSPHERE	■■■■■	CHALLENGE	■■■■■
INTERACTION	■■■■■	VALUE VERDICT	■■■■■

STATIONFALL

£24.95 ● Infocom/Activision (01-431 1101/2992) ● All PCWs

'And God said 'Let there be forms!' and out of the formless void a zillion trillion forms began to manifest themselves, spiralling into the homes of every citizen so that no man was left without, not even unto the day of his death."

This hitherto unknown extract from the Old Testament reveals that forms was part of God's original plan for the universe. The Almighty's reasoning is a little obscure but it's my suspicion that forms were sent here to make us better human beings – to teach us honesty, humility and patience... or if not that then to give us soaring blood pressure.

But what has all this got to do with Stationfall, Infocom's sequel to Planetfall, where with Floyd your robotic simpleton you rescued the planet Resida form ultimate destruction? Well, forms are the light motif of this unusual adventure.

At the start of the game you are all set to embark on a seemingly routine exercise, to collect a supply of 24 pallets of 'Request for Stellar Patrol Issue Regulation Black Form Binders Request Form Forms', forms that the DHSS would certainly be proud of.

Before you can get anywhere you must find the robot room and choose your robot by inserting one of the three forms in your possession into the appropriate slot. With a choice of three robots, including your old friend and simpleton Floyd, your decision could be crucial. Helen, for example has an unusual but admirably sane habit of eating any form she can get hold of. Unfortunately, you need a form to activate your spacetruck so she is a rather impractical choice.

The formless void

Your destination is Space Station Gamma Delta Gamma 777-G 59/59 Sector Alpha-Mu-79 which, I'm told in confidence, is just east of Ashby-de-la-Zouch. To get there you must key in the correct navigational data, a chart for which is on the Assignment Completion Form that comes with the package. What number you key in should correspond to the time shown top right hand of screen. Key in the wrong number and you'll be left floating in space without help.

Once you get to the station you find that the Station Commander, his six officers and his thirty-six crew members have all mysteriously disappeared. Even with your rather limited intelligence you can sense that something is wrong. You eventually realise that this routine mission is going to be far more exciting, and of course more dangerous, than you ever thought possible.

The captain's log only confirms your suspicions. It details an increasing number of mechanical failures and other such mysteries, coinciding with the arrival of an alien craft containing a strange pyramid (presumably not full size).

There are eight levels of the space station to explore and three sub-modules: a 'seedy village' (Ah! Ashby-de-la-Zouch!), the science department and the military department. These areas cannot be entered without the appropriate validation form, a crumpled copy of which is hidden in the space station.

The space station is like a mini metropolis with its own chapel, laundry, gym, theatre, library and dormitories. To help you find your way around, those nice Infocom people have mapped out all eight levels for you and these are included in the package. Consequently, not only is your exploration made that much easier but you don't have to keep stopping to draw your own map.

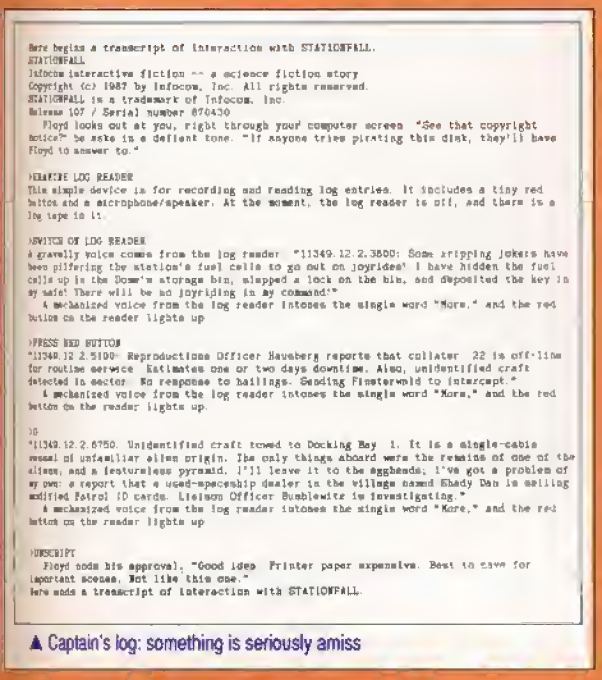
To add a little tension to the game there are a number of mechanical welders patrolling the space station corridors. It seems that since the alien ship arrived they have been unable to tell tell the difference between flesh and metal. There are carnivorous grues too, who lurk in the dark areas of ships because of their aversion to light, and there's also a rather ravenous steam presser to watch out for.

Still, for company there's your old friend Floyd and another rather philosophical robot called Plato, whose metallic nose is almost always in a book. Floyd is rather pathetic as usual. While you're trying to solve the greatest mystery in the history of the universe, he's more intent on playing hide and seek.

The usual Infocom goodies append, detailed maps of the various levels, three rather formidable looking forms and A Lieutenant First Class Badge which you can wear on your cap or, if you haven't a cap, then on your forehead.

Stationfall is an excellent sci-fi adventure which seems to merge the best of 2001 with the best of Star Trek. From now on, forms will never fill you with the same terror... or perhaps they will.

EXIT



Here begins a transcript of interaction with STATIONFALL.

STATIONFALL
Infocom interactive fiction -- a science fiction story
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Release 107 / Serial number 870430

Floyd looks out at you, right through your computer screen. "See that copyright notice?" he asks in a defiant tone. "If anyone tries pirating this disk, they'll have Floyd to answer to."

>EXAMINE LOG READER
This simple device is for recording and reading log entries. It includes a tiny red button and a microphone/speaker. At the moment, the log reader is off, and there is a log tape in it.

>SWITCH ON LOG READER
A gravelly voice comes from the log reader. "11349.12.2.3800: Some stripping jokers have been pilfering the station's fuel cells to go out on joyrides! I have hidden the fuel cells up in the Dome's storage bin, slapped a lock on the bin, and deposited the key in my safe! There will be no joyriding in my command!"

A mechanized voice from the log reader intones the single word "More," and the red button on the reader lights up.

>PRESS RED BUTTON
"11349.12.2.5100: Reproductions Officer Hayeberg reports that cellular 22 is off-line for routine service. Estimates one or two days downtime. Also, unidentified craft detected in sector. No response to hailings. Sending Finsterwald to intercept."

A mechanized voice from the log reader intones the single word "More," and the red button on the reader lights up.

>0
"11349.12.2.6750: Unidentified craft towed to Docking Bay 1. It is a single-cabin vessel of unfamiliar alien origin. The only things aboard were the remains of one of the aliens, and a featureless pyramid. I'll leave it to the eggheads; I've got a problem of my own: a report that a used-spaceship dealer in the village named Shady Dan is selling modified Patrol ID cards. Liaison Officer Bumblewitz is investigating."

A mechanized voice from the log reader intones the single word "More," and the red button on the reader lights up.

>UNSCRIPT
Floyd nods his approval. "Good idea. Printer paper expensive. Best to save for important scenes. Not like this one."
Here ends a transcript of interaction with STATIONFALL.

▲ Captain's log: something is seriously amiss

PLUSES
- Detailed maps provided
- Unusual but humorous puzzles
- Intriguing mystery

MINUSES
- Doesn't have score/moves at top right hand of screen
- Forms, pah! Who needs 'em!

ATMOSPHERE	■■■■■	CHALLENGE	■■■■■
INTERACTION	■■■■■	VALUE VERDICT	■■■■■

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I expect most people would like to be able to put their computer to other uses other than word processing. You may think it ludicrous to suggest that your PCW could be used to control a complex industrial process. Nothing could be further from the truth, the PCW is an excellent machine for such applications – I have even heard of a PCW that is helping to keep the worlds most up-to date North Sea oil production platform afloat!

The SM interface is a box of cunning electronics which plugs onto the expansion slot at the back of the PCW. The idea is that you can run programs on your PCW which send and read data to and from the interface. The interface takes the PCW's signals and converts them into clean digital pulses as required by electronic devices. The upshot of all this is that if you've got any electronic devices – most likely ones you've built yourself – you can now control them from a program running on your PCW.

A bag of chips

What you get for your money is a strong metal enclosure housing two Z80 PIO chips, and all the necessary electronics to interface them to the PCW. The connection to the PCW is made by a 50 way edge connector on a 15 inch length ribbon cable. You can safely use it on the managing director's antique desk without the risk of getting fired as it has even thoughtfully been fitted with four rubber feet.

Before you can get started you must have some sort of idea on how the Z80 PIO chips work as they are the heart of the unit. Essentially each PIO chip gives you two 8-bit ports. Each port can be configured as an input or as an output port. So, as you can see, the interface having two PIO's provides the user with 32 programmable I/O lines.

A disc is provided with the interface containing example driver software for the PIO's and documentation files on how to connect up the system and programming hints for the PIO's. This is one area where the package needs improvements. There is no printed manual supplied with the interface, all you get is a disc. On listing the directory I found many files but no documentation on what they were supposed to do, or on how to run them.

Software to control the module can easily be written with Mallard BASIC using the commands INP and OUT. Alternatively programs can be written in assembly language. Examples of both are given in the documentation files on the disc. The interface uses locations 00A8 to 00AF for its I/O, which are not remappable to other addresses.

▲ The SM interface and breakout module hooked up to test circuit

Drumming up enthusiasm

To put the interface through its paces I resurrected a long forgotten electronic drum machine. The drum machine was connected to the interface using the Breakout module but could easily been wired directly to the interface. In no time at all my 50+50 watt Low-Fi burst into life with the St Louis Blues March! Only simple routines were required to control this device, in fact Mallard BASIC should be fast enough for most applications.

The SM interface is a must for anyone wanting to put their PCW to work in areas other than word processing. The I/O Test Module and Breakout Module should appeal to institutions such as schools and colleges, but would be an expensive luxury for the knowledgeable hobbyist who could knock one up out of a handful of LEDs and a few switches. Remembered, however, that on its own the interface just sits there and does absolutely nothing. It's up to you to think of a use for it.

EXIT

Optional extras

Additional modules are available for use with the interface to aid development work. They are all constructed to the same high standard as the interface, and connect to the interface module via a short length of ribbon cable.

An Input/Output Test Module (£39.95) which uses eight toggle switches to simulate inputs and LEDs to indicate the output state on any one port, so you can test your software without needing to hook up your external hardware. A jumper plug on the module selects either port A or port B. The test modules can be daisy chained to enable two modules to monitor both PIO ports if required.

A Breakout Module (£18.95) which takes all the lines from one of the PIOs to PCB mounted screw terminals allowing quick and easy connection to the circuit under test.

Two other modules are planned for release soon, an 8-bit Analogue to Digital converter (£39.95) and an 8-bit Digital to Analogue converter (£29.95).

PLUSES

- Sturdily built units
- Many uses for the imaginative constructor
- Easily programmed in Mallard Basic or Assembly Language

MINUSES

- Poor documentation, you won't have it up and running in 5 minutes
- Cost of add-on units for the interface a little pricey for the home user

RANGE OF FEATURES	■■■■■	PERFORMANCE	■■■■■
EASE OF USE	■■■■■	DOCUMENTATION	■■■■■

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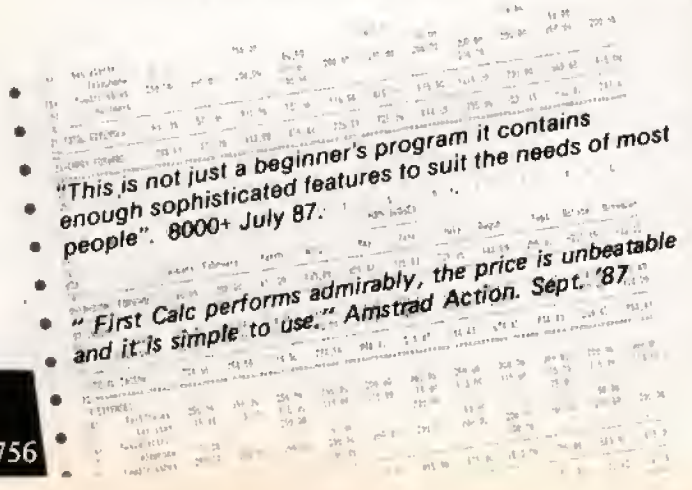

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▲ The MasterScan interface box showing the contrast control knob.

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INSTANT

Whenever you see an advertisement for a graphics program on the PCW, the screen always seems to be displaying an elegant photograph that would take you weeks to create line-by-line for yourself. Of course, these pictures aren't created by hand but are 'digitised' from a photograph.

What could be better than being able to take images from any drawing or illustration you have available? Up until now the only option was to invest £100 on a digitiser interface for the PCW, and even then you had to have a video recorder or camera which probably costs more than the PCW itself.

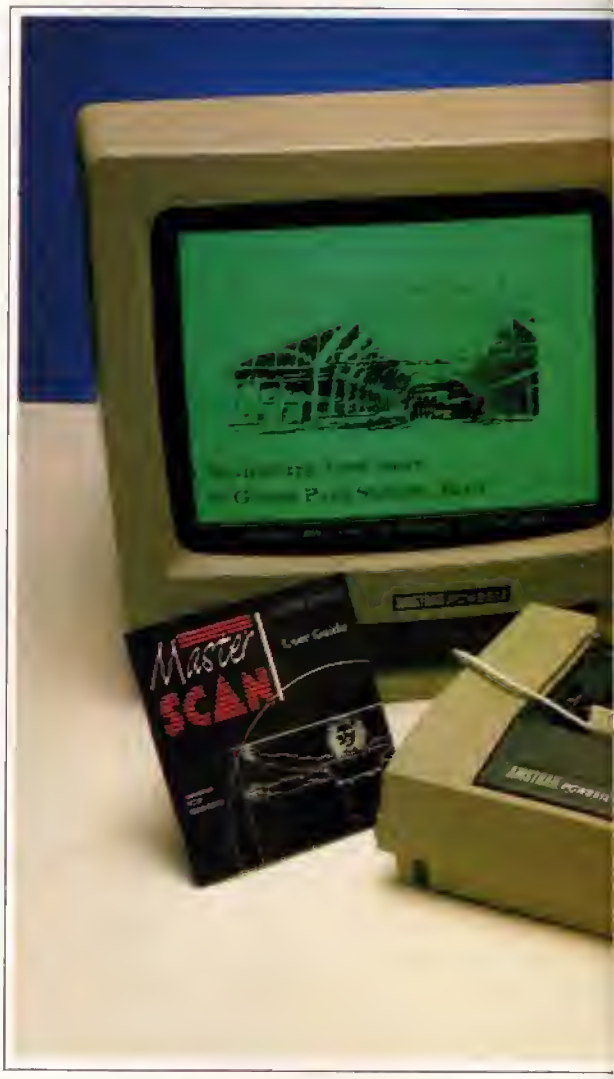
MasterScan comes along at a very opportune time. With the sudden burst of activity in the desk top publishing market a large number of people are now looking for good quality illustrations to brighten up the pages of their newsletters or fly-sheets. Even the best of 'clip art' files get boring pretty quickly.

MasterScan is a remarkable piece of equipment that many PCW users will find invaluable providing a low cost method of creating graphics in their PCWs. It 'scans' any pictures using an ingenious 'magic eye' scanning device that fits to printhead of the PCW printer. This scanning head leads into an iternterface box which fits onto the expansion port at the back of the PCW.

To scan a picture then, feed the sheet to be scanned into the printer as though you were going to print on it, and start up the MasterScan software. The printer runs as if it was printing although the only action is to move the scanning lens along the line and incidentally mark a dot at the end of the line – it's a bad idea to use valuable original artwork since it can get a nasty printed line down its right hand side unless you remove the printer ribbon while scanning.

It is not a particularly quick job as the scanner runs along each of the 256 lines on the screen, but it can look very effective. The maximum area that can be read is about 8" by 6½", and the scanning process takes about 12 minutes for the whole page. If you only want to scan a small area you can interrupt the scanning once the bit you want has been recorded. The quality of the result depends very much on the type of picture that you are starting off with.

MasterScan merely creates a dot-for-dot screen image of the picture you gave it. It isn't clever enough to recognise that certain patterns of dots happen to correspond to what humans recognise as 'words'. If you scan a page of text, don't expect a word processable text file out of MasterScan – there are devices called 'Optical Character Readers' which can do this, but they aren't available on the PCW.



What's the point?

Measuring the size of text in 'points' is an obscure printer's convention. One point is in fact 1/72 of an inch, and the point size indicates the height of the letters. Thus 12 point text is roughly ⅙" high.

The true fax

The adverts for MasterScan proudly announce that not only can it scan pictures but in conjunction with a modem it is an ideal low-cost office fax machine. The idea is that you use MasterScan to scan a page of text and diagrams, then with the aid of your communications software and modem transmit the page to someone else.

While it does not detract very much from the product as a whole, it is certainly overstating things to suggest that it could or would be used as a fax machine.

Anyone seriously considering fax transmissions has to take several details into account. It is not compatible with the general BT Fax system and can only send pictures to another PCW with the same software. You will also need to buy some communications software, a serial interface and a modem to send pictures down phone lines, which all pushes the price up.

However the main argument against using it as a fax is that it does not handle text particularly well. Text under 20 point size (just slightly smaller than the headline of this box) comes out distorted and normal newsprint and book text would be completely illegible. The body text of this page is 8 point text.

As faxes are often used for transmitting pages of text and are seldom used for sending illustrations that do not have some sort of text this is extremely limiting.

Scanning a few sizes of text ▼

IMAGES

Alec Rae puts you in the picture about a new way of getting illustrations onto your PCW

Many photos can be scanned

Fade to grey

MasterScan's main problem is that the PCW screen displays everything in black and white (well, black and green to be exact). Shades of grey on photographs and so on therefore will be either black or white – there is a threshold at which darker shades are taken to be black and lighter shades white. The MasterScan interface box has a contrast switch to allow you to control this threshold, but it can mean that on delicate pictures you need to spend a long time getting the contrast just right for best results.

The pictures that scan best are line drawings or any illustrations with strong contrasts. Photographs with a lot of grey in them can come out quite unlike the original.

The other problem area is the quality of the paper that you use. Shiny surfaces do cause problems to the scanner and a lot of detail can be lost from a gloss finished photograph or magazine page. The manual suggests that you photocopy the shiniest papers. This would also be useful for any illustrations you are not sure of as a photocopy tends to convert greys to black and white, so will give you a fair idea of how the illustration will turn out and could save you some time.

The program takes account of the fact that there are a number of images that just won't reproduce properly and allows you to abort the scan at any time and asks at the end if you want to keep it or not. You can save the pictures as disc files (they each take 24k of space on the disc) and then read these files in to art programs or desktop publishing programs.

What format?

A great selling point with MasterScan is that it can be used to create graphics in different formats. It can be used with Fleet Street Editor, Newsdesk International, The Desktop Publisher and the brand new Stop Press from AMS. It can be used with Database's own drawing program MasterPaint where you can tidy it up, embellish it, merge it with other images or change it about generally.

Being menu driven the program is extremely easy to use and there are no difficult commands to remember. Even operations like moving from one user group to another is no problem with MasterScan.

There are some neat features like the ability to reduce the image by half or blow it up to six times normal size. Again the success of this depends very much on the individual image quality. You can also decide the width of your illustration by setting the scanner head to only go between specified column positions on the printer.

Of course it is vital to have another program to export it to as you can do nothing with the pictures in MasterScan – other than sit and admire them. It will not print out the scanned picture for instance. However, it provides an invaluable source of suitable illustrations for anyone wanting to use graphics on the PCW.

EXIT

Tale of two heads

The version of MasterScan we reviewed would only work with pre-1987 PCW printers – newer ones have an unsuitable print head, as illustrated in last month's news pages. Database say that they have got round this by designing another fitment for newer print heads allowing the scanner to piggyback on. We haven't seen the new unit but are assured that it will be sent out as standard with all MasterScans.

PLUSES

- Simple method of providing really suitable graphics.
- Suitable for all desk top publishing programs
- Contrast control very useful

MINUSES

- Quality of scanned text is poor – no good for faxes
- Has problems with illustrations with a lot of grey in them.

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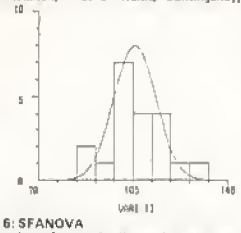

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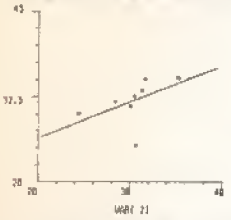

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LANGFORD'S PRINTOUT

A page foolishly handed over to SF author DAVID LANGFORD who just happens to own an AMSTRAD

READING FOR PROFIT

Most writers are compulsive readers, hopelessly addicted to the solitary pleasures of the printed word. (I keep waiting for our dear government to realise the perils, and plaster the country with posters saying FICTION REALLY SCREWS YOU UP, or warning of the terrible diseases you might get from sharing paperbacks.) Most writers, sooner or later, have a glorious moment of revelation when they find that one can lounge around reading books and *get paid for it*....

One of the reasons for my being a bit dogmatic about manuscript presentation – see several previous columns – is that when not at the keyboard, I intermittently suffer through all too many grotty manuscripts. If you want to lounge around earning ridiculously tiny sums of money, try the humble calling of "publisher's reader".

Unsolicited plug

You can learn lots about the pitfalls of novel-writing from Christopher Derrick's *Reader's Report* (Gollancz, 1969) – wise advice from a publisher's reader who's seen it all. As the date indicates, computers do not feature; the warnings are still horribly true. Try the library.

The background is like this. Each year, far too many books appear. Those which are published are the mere tip of the iceberg, the thinnest possible skim of cream atop the vast churning unpublishable torrents which pour with terrible fluency from tens of thousands of Amstrad PCWs.

Editors haven't time to read all the unsolicited stuff from unknown authors: they reject some at a glance for being handwritten, typed single-spaced on translucent paper with no margins on either side, or sabotaged by an inept covering letter. ("This is a totally new Sci Fi idea, its all about a huge Meteor weighing tons of light year's which is going to smash right into Earth's orbit... OR IS IT??!!") The odds are that, while the full-time editor gets down to the serious work of copyediting some new Jeffrey Archer coprolite into readable shape, the brilliant novel by unknown you will be farmed out for a freelance reader's report.

The lowly reader is thus subjected to the real dregs. These haggard beings gather sometimes in pubs (where, in deference to the complaints of alcohol-hating *8000 Plus* subscribers, they only ever drink slimline tonic water) and swap anecdotes about legendary grot. One well-known fantasy author, for example, apparently wrote a book which has never got past the publisher's-reader stage, being called *Mercycle* and dealing with the exploits of mermaids on bicycles. Gorblimey.

Transatlantic traumas

Before you all burst into tears at the thought of my sufferings, I'll admit I'm lucky enough to report mainly on writers who are publishable – usually the book's been sold in the USA, and a British outfit wants an opinion. You see some funny things:

A high-tech author whose name is synonymous with glittering computerised SF still bashes it out on an old manual typewriter, the typebars so out of alignment that you'd think the writer was using a pneumatic drill with the other hand.

LocoScript may have its limitations, but (after the embarrassing early bugs of Loco 1) there's never been any trouble with page numbers. It was an author whose word-processing *software* alone cost more than a PCW who turned in a script with un-numbered pages....

Anticipating the paperless office, one author sent in a disc rather than a printout. When the postman bends an ordinary manuscript, legibility is rarely harmed; when he tries to bend a 3" PCW disk, it usually puts up a successful fight; unfortunately *this* disk was one of the limp 5 ¼" monsters favoured by IBM and the PC1512. Through brilliant computer skills I eventually recovered the file with the novel, only slightly creased....

So much for anecdotes – though my favourite computer-cum-publishing story is too good to omit despite having nothing to do with the toils of readers. Famous author X had the bright idea of arranging for the little printing firm up the road to typeset straight from his disks, thus saving the publishers staggering sums of money! Presumably the little typesetter wasn't frightfully efficient, since the unamused publishers later worked out that the book had cost them more than boring old conventional typesetting would have.

This was also the author who made his alien speech authentic by cunning use of Exchange: he would write "rabbit", say, throughout the text, and when the story was finished the word processor would change every mention of rabbits to the more science-fictional *sm'eerp*. Please do not all imitate this technique.

What the poor sod of a publisher's reader hopes for is legibility (new ribbon, high quality print, and don't use 17-pitch), literacy (which lies between you, your conscience, your dictionary and Fowler's *Modern English Usage*) and liftability (a typescript weighing six kilograms *must* be separable into bite-size chunks for actual reading). The read-through by a conscientious editor or publisher's reader is the one time you can rely on the undivided attention of a professional at whom you are not actually pointing a gun. If the reader has had a retina detached by the attempt to follow faded text, and is also worrying about blood poisoning thanks to the jagged gash torn in one hand by your amateur job of stapling, he or she may not be totally impartial when reporting on your masterpiece.

On the other hand, clipping £100 in used fivers to page 94 (which Brian Aldiss told me could help with the Booker Prize) doesn't necessarily work either.... EXIT

The token Loco 2 mention

A correspondent bewailed not being able to persuade Loco 2 to print a header on the last page of anything. Later he happily reported that a newer version of the program had fixed this.

I don't know whether they've cured the points that still bother me: (a) no 'screen image' print with [EXTRA]+[PTR], presumably intentional since it's not in the Loco 2 manual; (b) some accented characters are scrambled when files are converted to ASCII. You might expect the accents to be lost when the accented character isn't in the Amstrad ASCII table, but certain characters are changed to something completely wrong. *((a) was certainly fixed a while back. Locomotive will swap any old versions for new if you return your master disc for replacement. It's free for real bug fixes, a fiver if you just collect upgrades – Ed.)*

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THE PERSONAL TOUCH

Novelties and no-nonsense nuggets in this month's BASIC listings

Bank Statement

Brian F Wright

Here is a practical way to use your PCW to keep track of the money in your many bank accounts. It allows you to enter all the cheques or debits and any deposits (why is it there are always more debits?) and keeps track of the current balance in a file on your disc.

When you run the program, the first thing you are asked for is the number of the account you want to look at – this means the short number 1, 2 or 3 printed by the account at the top right of the screen (not the 7 digit number in your cheque book!) followed, as always, by [RETURN].

Next the current balance and most recent entry date is shown for that account, and you are asked whether to go on or not – type Y to make additions, or N to look at another account or exit.

Follow the prompts by first typing in the date. Next you are asked for all debits (or cheques cashed). Type in the amount of the debit, and the program will carry on in a loop asking until you are all done. The program keeps track of the total with depressing accuracy. To indicate that you've finished entering debits, just press [RETURN] without typing anything.

After this you are asked if you have managed to scrape together any deposits to cover all these cheques. In the likely event that there are none just press [RETURN] to go on. You are only allowed one deposit per day, but if you're clever you could alter the program to have the same continuous entry system as for debits by using the method in lines 110 and 120.

You can decide on the names of the accounts you want to keep track of by adjusting the text in line 20. Remember to enter the name in quotes – "Swiss" or "Cayman Islands" and the number. The program will print these on the screen as a memory jogger for you.

At the end the program prints out a statement of affairs with your ingoings and outgoings and the new balance, and you can move on to gloat over the vast amount of money you have tucked away in your deposit account.

The final balances are written out to a file for use next time you run the program – the individual debits and credits aren't recorded, but at least this way it isn't too much of a bind to keep an accurate check on your bank balances.

```
0 REM Brian F Wright                                                                    07C8
10 PRINT CHR$(27)+"E"+CHR$(27)+"H"                                                      0867
20 PRINT TAB(60)"CURRENT-1":PRINT TAB(60)"DEPOSIT-2":PRINT TAB(60)"B/SOC-3"             1AC9
30 OPEN "R",1,"FINANCE",14: FIELD 1,4 AS BAL$,10 AS D$                                  0E82
40 INPUT "ACCOUNT NUMBER ";BAL%: GET 1,BAL%:                                            0F81
50 a=CVS(BAL$):CLOSE                                                                    0748
60 IF CVS(BAL$)<0 THEN GOSUB 200                                                        0A4F
70 PRINT:PRINT "Last Date ";D$                                                          08CB
80 PRINT "STARTING BALANCE " USING "£#####.##";a                                        10EB
90 INPUT "Do you want to continue ";ANS$: IF UPPER$(LEFT$(ANS$,1))<>"Y" THEN 180        1070
100 INPUT "DATE ";date$                                                                 0890
110 INPUT "CHEQUE/DEBIT VALUE";b:IF b=0 GOTO 130                                        1134
120 b=b+c:c=b:GOTO 110                                                                  06F5
130 INPUT "DEPOSIT  ";d                                                                 081D
140 f=a-c+d                                                                             0307
150 PRINT USING "Start Bal £#####.## out £####.## dep £####.## bal £#####.##";a,c,d,f  17A4
160 OPEN "R",1,"FINANCE",14: FIELD 1, 4 AS BAL$,10 AS D$                                0EF6
170 LSET BAL$=MKS$(f):LSET D$=date$:PUT 1,BAL%:CLOSE:CLEAR                              1526
180 INPUT "Do you want another account";ANS$:IF UPPER$(LEFT$(ANS$,1))="Y" GOTO 20       1897
190 END                                                                                 02CB
200 PRINT "YOU ARE OVERDRAWN BY",TAB(60)USING "£####.##" ;a:RETURN                      15EB
```

Handwritten type

Kelvin Stott

Now this is really personalising your PCW. Have you ever felt annoyed by the style of the screen lettering, or frustrated that you can't define your own special display characters? This listing takes all the lower case letters on your PCW screen and turns them into beautifully flowing joined-up writing.

Although only 15 lines, the listing is packed with a fair amount of detail. It would be wise to check the program carefully (using the 8000 Plus Basic Checker program if possible) before running as even a small mistake on the data lines from 70 to 150 could have some drastic effects on your character set. And *do* save the program (as described in the 'How to type in a listing' box) before running it, since a mistake in lines 20-30 could make your PCW lock up. (If this happens, all you can do is turn off and restart.)

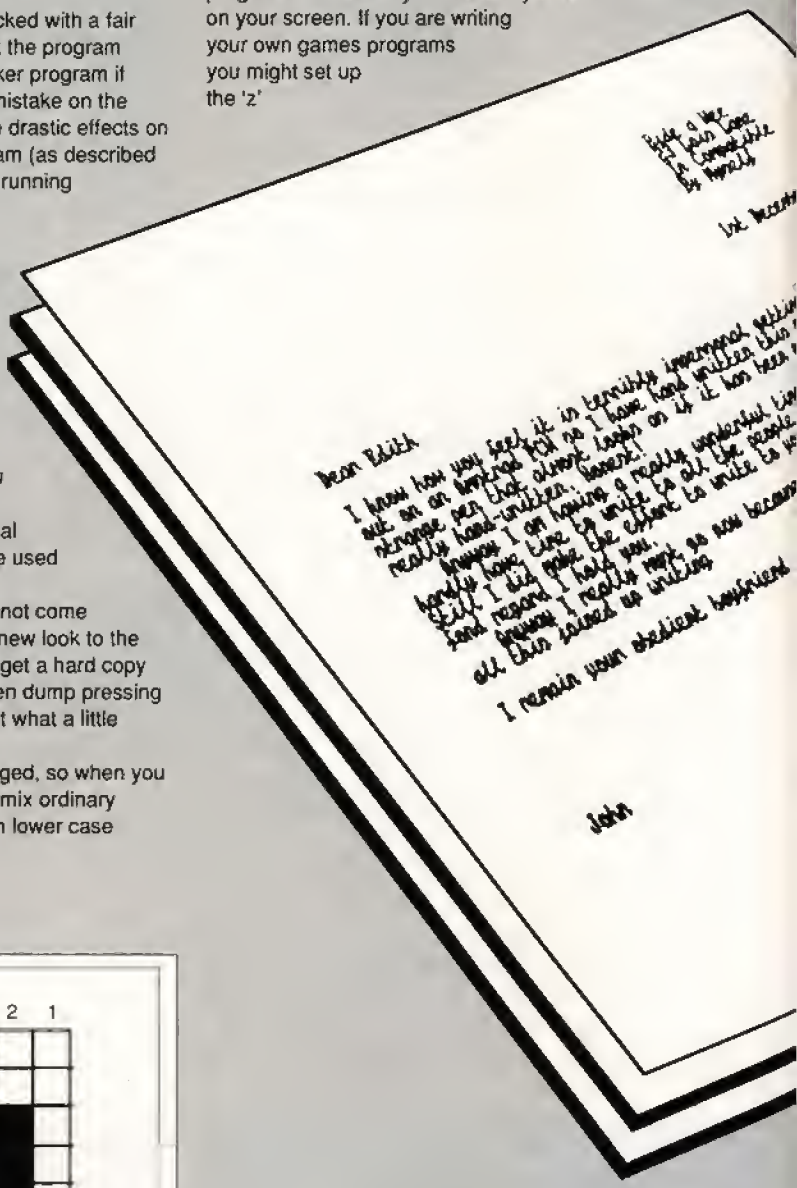
As soon as you run the program you will see the results – BASIC's messages will come up on the screen in handwriting. You will need to run this program every time you start the PCW up, since the character set changes are not permanent and are forgotten when you turn off (and, it follows, turning off and on again is the simplest way to revert to normal characters). The new characters cannot be used for LocoScript.

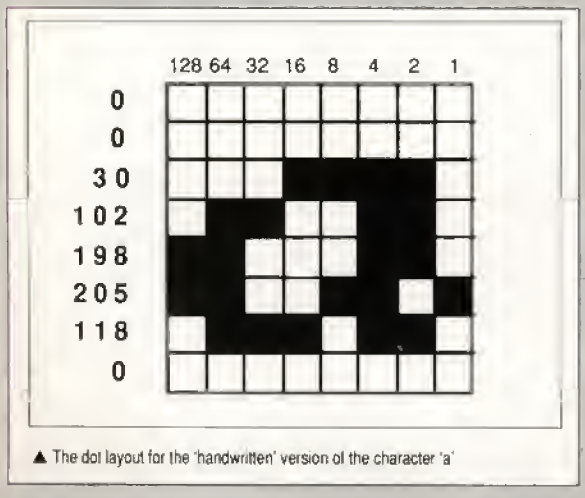
Unfortunately this beautiful script does not come out on the printer but it does give a whole new look to the green screen. If you're really desperate to get a hard copy 8256/8512 users can of course get a screen dump pressing [EXTRA] and [PTR]. You will be amazed at what a little listing will do.

The upper case characters are unchanged, so when you are writing a program for yourself you can mix ordinary upper case words with pseudo-handwritten lower case comments for effect.

How it all works

With a little ingenuity, you can easily adapt this program to create any characters you like on your screen. If you are writing your own games programs you might set up the 'z'





▲ The dot layout for the 'handwritten' version of the character 'a'

character to be a Space Invader, for example.

The essence of the program is in lines 70 to 150 – these contain the magic numbers which define what pattern of dots the PCW displays on its screen when you tell it to print a particular character from 'a' to 'z'.

Each letter on the screen is made up on a grid of 8 by 8 dots – you can see them if you look really closely. The pattern of 64 dots for each letter is stored in the PCW's memory.

The numbers in the DATA statements from lines 70 to 150 are in fact 26 sets of 8 numbers, each set of 8 numbers defining the dot pattern for 'a' to 'z' respectively. The first eight (0, 0, 30, 102, 198, 205, 118, 0) make up the handwritten letter 'a' for example.

To understand how the figures are arrived at you have to refer to the little diagram at the bottom left. Each number in the set of 8 which defines a letter's shape corresponds to a row of 8 dots. The first number is the top row, the last the bottom row. Each column is given a number (1, 2, 4, 8, 16, 32, 64 or 128) as labelled.

Once you have drawn your character on the 8x8 grid, you work out what the code number for each row is by adding up all the column codes in that row. So if you want to put one dot in the top right hand corner you would put in a 1 for the first row code. For a dot in the top right hand corner (1) and one in the top left hand corner (128) you would use 129. To fill every dot in a row you add all the values together and get 255.

With this knowledge and a bit of experimentation you could modify the program to adapt the character set to suit yourself. In line 40 you see that the DATA values in lines 70 to 150 are being used to redefine the screen versions of ASCII characters 97 to 122 (ie. 'a' to 'z'). By changing this to 71 to 96 you could adapt your own character set for all the capital letters. Or you could leave the text as it is and redefine some lesser used graphics keys such as ½, { and } to be your Space Invaders.

Longer programs needed!!!

Starting from next month, we're changing the look of Listings Plus. As well as continuing the very popular short listings we do, there will be one major listing going over two pages, with notes and suggestions on how to improve it.This means we are looking for well written programs of 50-100 lines which we can use. Of course, since we still want short listings too, the longer ones will have to be *really* special!

If you can program you could earn hard cash and instant fame by having your program printed in 8000 Plus. Give instructions on an accompanying sheet for using the program, and if there are any useful modifications that readers can make by simple edits to customise the program, mention those too.

To submit a listing you must supply:

1. A printout of the listing;

2. A disc on which it is saved;

3. A stamped, addressed padded bag for its return;

4. An explanation of what it does and how to use it;

5. A signed statement confirming that the program is your own work and hasn't been submitted to anybody else.

Send your listings to *Listings, 8000 Plus, 4 Queen Street, Bath BA1 1EJ.* Please allow up to 40 days for return of your disc – the listings are assessed in a batch once a month.

```
10 MEMORY &HBFFE:FOR hex=&HC070 TO &HC098:READ pk:POKE hex,pk:NEXT hex                1840
20 DATA 243,62,129,211,241,62,130,211,242,175,95,103,22,184,58,153,192,111,41,41    1100
30 DATA 41,25,17,154,192,235,1,8,0,237,176,62,133,211,241,62,134,211,242,251,201    110F
40 FOR char=97 TO 122:POKE &HC099,char                                              0D7A
50 FOR row=1 TO 8:READ binary(row):POKE &HC099+row,(binary(row)):NEXT row           1C70
60 cl=&HC070:CALL cl:NEXT char                                                      0AE8
70 DATA 0,0,30,102,198,205,118,0,48,48,96,108,198,199,60,0,0,0,60,102,192,193,126,0 11D8
80 DATA 6,6,12,124,204,205,118,0,0,0,124,216,240,193,126,0,15,24,24,24,252,159,48,224 126B
90 DATA 0,0,124,204,204,127,56,224,48,48,96,124,204,205,198,0,12,0,12,24,56,217,14,0 1233
100 DATA 12,0,12,28,120,153,62,240,48,48,96,124,228,217,206,0,12,28,24,48,112,153,14,0 125B
110 DATA 0,0,119,127,214,199,198,0,0,0,124,102,204,205,198,0,0,0,60,110,102,231,60,0 11AB
120 DATA 0,0,60,102,102,239,96,192,0,0,124,204,216,247,60,112,0,0,126,102,198,195,192,0 12C2
130 DATA 0,0,124,102,198,143,56,0,48,48,96,124,192,193,126,0,0,0,102,102,204,205,118,0 1243
140 DATA 0,0,102,102,110,251,48,0,0,0,99,99,214,255,108,0,0,0,119,156,24,153,110,0 1123
150 DATA 0,0,102,102,204,127,56,224,0,0,60,102,204,135,60,112                       0CDD
```

BASIC Find/Exchange

Richard Cox

Being able to do simple text editing operations on a BASIC program can often be invaluable. The normal BASIC system only allows you to make changes on one line at a time, which is hardly very hi-tech.

You can of course use a word processor to edit programs, but this can be inconvenient: here is a way to do it all without ever leaving BASIC by having your own Find/Exchange program.

This can come in useful in a number of ways. For instance if you are testing a program which has lots of LPRINT statements you can end up wasting a lot of paper and time. The best thing to do is change all the LPRINTs to PRINTs while testing, and change them back when the whole thing works.

This listing is custom built for just such an occasion. First, save the program you want to edit in ASCII form with the command `SAVE "filename",A`. Now, supposing you have saved this Find and Exchange listing as FINDEX.BAS, type `RUN "FINDEX"`. The program asks you for the name of the program you just saved, so type whatever you chose for FILENAME earlier.

You are now being asked for the string of characters to be changed (say PRINT) and the string that you want to change it to (LPRINT). Each line of your program is printed out on screen and each time PRINT is mentioned it is highlighted with an impressive device made of up-arrows. (When you need to write an up-arrow in line 190 as you type the listing in use [EXTRA] and U.) You then have the choice

```
10 E$=CHR$(27): H$=E$+"H": lf$=CHR$(10): cbt$=E$+"J": cls$=E$+"E"                    0F41
20 rv$=E$+"p": nv$=E$+"q": up$=E$+"I": DEFINT a-z: WIDTH 255                         10FB
30 PRINT cls$;h$                                                                     0615
40 INPUT "Enter program name: ",prog$: PRINT                                         1042
50 IF UPPER$(RIGHT$(prog$,3))<>"BAS" THEN prog$=prog$+".bas"                         1612
60 OPEN "I",1,prog$: OPEN "o",2,"M:temp.$$$"                                         0051
70 LINE INPUT "         old string: ",o$                                             083F
80 LINE INPUT "         new string: ",n$                                             0849
90 PRINT                                                                             0379
100 WHILE NOT EOF(1)                                                                 0702
110     LINE INPUT #1,ln$                                                            0767
120     PRINT ln$                                                                    0417
130     p=INSTR(ln$,o$): WHILE p<>0: GOSUB 180: WEND                                1048
140     PRINT #2,ln$                                                                 0467
150 WEND                                                                             0318
160 CLOSE 1,2                                                                        09A0
170 LOAD "M:temp.$$$"                                                                0660
180 PRINT up$;up$                                                                    0637
190 PRINT LEFT$(ln$,p-1);lf$;STRING$(LEN(o$),"^"): PRINT "Exchange? Y/N: ";          1878
200 IF UPPER$(INPUT$(1))="Y" THEN ln$=LEFT$(ln$,p-1)+n$+MID$(ln$,p+LEN(n$)):p=p+LEN(n$)  1B44
210 PRINT up$;up$;up$;CHR$(13): PRINT ln$;cbt$                                       1006
220 p=INSTR(p+1,ln$,o$)                                                              07A3
230 RETURN                                                                           03B8
```

```
Enter program name: test

        old string: PRINT
        new string: LPRINT

0 REM Produce a Calendar for any year
10  CLEAR:PRINT CHR$(27);"E";CHR$(27)+"H"
15  DIM M$(12): DIM M(12):DIM K(12)
20  INPUT"CALENDAR YEAR REQUIRED ",Y
25  '
30  L=Y-3+INT((Y+3)/4)
35  L=(L-7*INT(L/7))
40  FOR C=1 TO 12: IF C<8 THEN READ D$(C)
45  READ M$(C):READ M(C): IF INT(Y/4)=Y/4 THEN M(2)=1
50  K(C)=M(C)-D(C)-E+(7 AND E<-5)
55  E=D(C):NEXT
60  '
65  LPRINT TAB(28);Y;"C A L E N D A R":M=1
70  FOR C=1 TO 6:PRINT TAB(11);M$(M);TAB(51);M$(M+1):PRINT
                       ^^^^^
Exchange? Y/N: _
```

of changing that occurrence or not.

Once all the changes have been made the modified program is automatically reloaded for you, so typing `RUN` will run it. You still have to save the altered program in the normal way or the edits will be lost when you leave BASIC.

There are a thousand and one other possible uses of this program. For instance, if you want to find every line that a variable TOTAL$ is mentioned in your program you can exchange TOTAL$ for TOTAL$ (ie. leave it unchanged!) and the exchanging program will pause at every occurrence. Your eye might not notice that you type TOTALS where you meant TOTAL$ but the machine won't be fooled. EXIT

How to type in a listing

The first thing to do is to load Mallard BASIC. Turn on your PCW and put the copy of the CP/M master disc in drive A.

When the A> prompt appears type `BASIC` and press [RETURN]. After a few seconds a message about Mallard BASIC will appear on the screen, ending with the prompt 'Ok'.

Type in each line carefully, starting with the line number and ending with [RETURN]. The four figure number codes on the extreme right of each line should *not* be typed – this is for checking purposes if you are using the 8000 Plus checker program as printed last month.

Be careful not to mix up capital `I`, lower case `l` and the digit `1`, capital `O` with the digit `0`, colons and semicolons, commas and full stops.

You should always save any listing to disc before running it. to do this type `SAVE "PROGRAM"` – you can choose any name you like up to eight letters in place of PROGRAM.

When you've finished, type `LIST` [RETURN] and the whole program will appear on the screen. Check it, and if any lines are wrong correct them with the 'line editor'.

For example, if there is a mistake in line 100 type `EDIT 100` [RETURN]. Use the arrow keys and the delete key to correct the line, and press [RETURN] when finished. You can delete a whole line by typing its number and then [RETURN].

To run the program, simply type `RUN` [RETURN]...

But! It's more than likely that no matter how meticulously you typed in the listing it won't work first time. You may get an error message such as 'Syntax error in 100'. The line number given in any error message may not be exactly where the error is, it is simply where the program got stuck. You may have to look around for the mistake.

You can list out the program to the printer (use `LLIST`) and check it against the magazine copy.

When you find the mistake use the line editor as described to correct it, re-run the program and keep going until you have got it working. Don't forget to save the final working version to disc!

To leave BASIC and get back to CP/M type `SYSTEM` [RETURN].

To run the program another day, start up BASIC in the same way, put in the disc with the saved program and type `RUN "PROGRAM"` (giving the name you saved it under in place of PROGRAM, of course).

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PUBLIC INTELLIGENCE

His appetite whetted by this month's AI feature, Frank Peters looks at a Public Domain LISP interpreter.

Artificial Intelligence – AI for short – is one of the most glamorous areas of computing at the moment. As this month's cover feature explains, a simple study of the techniques of AI will equip you to create computerised accountants, to write programs that understand English sentences, or to build your own robot.

Well, to be honest these programming feats are still hot topics of debate in universities. However, there is a lot you can do for yourself given the right tools. By popular vote (ie. the Americans all use it), the programming language LISP is *the* tool for artificial intelligence programming. And luckily there is a LISP interpreter available in the Public Domain – yours for the price of a phone call.

Where to go

If you want to get hold of Public Domain software, there are two sources which might interest you. *The CP/M User Group* publishes a vast software library, though not all of it is relevant to PCW owners. The software itself is free, but there is an annual subscription and copying fee per disc. Details from The Secretary, CP/M User Group, 72 Mill Road, Hawley, Dartford, Kent DA2 7RZ – please enclose a large SAE.

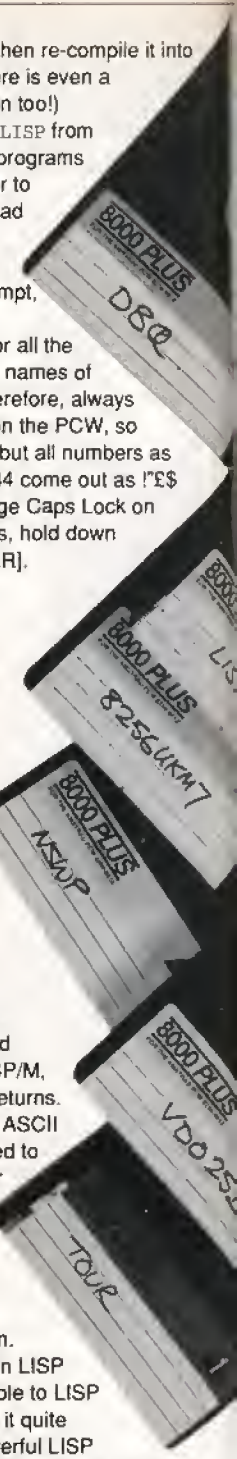
Another source is *PD Software* of Winscombe House, Beacon Road, Crowborough, East Sussex TN6 1UL (phone 08926 63298). Again, there are membership and copying charges.

If you are into the world of comms, you can download software from Frank Peters' bulletin board, active 24 hours a day on 0462 700644.

The current PD LISP system is all due to the hard work of Lanfranco Emiliani. The library of files supplied not only includes the interpreter program itself, namely LISP.COM, but the complete source code in Pascal as well (LISP.PAS). Thus if you are unhappy with the way it has been written, or you are a born 'tweaker' you can feel free to customise the source however much you like and then re-compile it into a runnable program again. (Yes, there is even a Pascal compiler in the Public Domain too!)

To run the program, simply type `LISP` from CP/M. There are two ways to enter programs into LISP: you could use a text editor to prepare a LISP program and then load this into the LISP system, or alternatively you could just type in the program directly at the LISP prompt, just as you do with Mallard BASIC.

Capital letters have to be used for all the LISP reserved words – for example, names of functions. It is a wise precaution, therefore, always to work with the 'Caps Lock' mode on the PCW, so that all letters come out as capitals, but all numbers as numbers (full 'Shift Lock' makes 1234 come out as !"£$ and so on). To engage and disengage Caps Lock on the PCW use [ALT]+[ENTER], that is, hold down the [ALT] key and then press [ENTER].



From start to FIN

Once LISP has initialised itself it will announce itself ready for input with the prompt 'READY'. You can now type in the sequence of LISP expressions you wish to be evaluated on one or more lines. Each expression must be preceded and followed with a set of brackets to allow the LISP interpreter to isolate it as an expression.

When you have finished command entry and you wish to see the result of your labours, press carriage return twice. If you have had enough and wish to return back to CP/M, enter FIN followed by two carriage returns.

Along with LISP interpreter is an ASCII text file called INITLISP which is used to supply data to the interpreter to alter the LISP environment. What this means is that you could add your own function definitions to this file and hence effectively increase the range of commands available as you program. The INITLISP data is in fact written in LISP and so any of the commands available to LISP can be used in this file, thus making it quite possible to create a reasonably powerful LISP environment. Lanfranco has even thoughtfully included an example of how you can use the INITLISP file to customise your own LISP system.

Among the commands available in this PD LISP are all the usual standards such as AND, APPEND, ATOM, CAR, CDR, COND, CONS, COPY, DEFEXP, DEFFEXP, EQ, EQUAL, EVAL, FUNCTION, LABEL, LAMBDA, LAST, LENGTH, LIST, NOT, NULL, OR, PROG, PROGN, QUOTE, REMOB, REPLACEH, REPLACET, REVERSE, SET, SETQ, TRACE, UNTRACE. Functions dealing with numbers have not been supported, but then again *real* programmers don't use numbers anyway.

Overall, this version of LISP is a nice way for you to discover whether you are going to find LISP a useful language or not. For really serious LISP hackers, the lack of more sophisticated functions may prove constraining. There are of course many fine commercial LISP implementations, but that's another story.

What is LISP?

LISP stands for *LIS*t *P*rocessing, and is a programming language based around the idea that everything – program code, text strings and numbers – is simply a list of characters.

There are computers dedicated to just running LISP (imaginatively called 'LISP machines'). If you see one of these you will notice that the keys '(' and ')' are very prominent – you don't need to hold down [SHIFT] to type brackets. This is because in LISP everything has brackets around it. Here's an example of LISP code:

```
(COND (EQ A B) (SETQ C 1) (SETQ C 2))
```

This is equivalent to the BASIC line:

```
IF A=B THEN C=1 ELSE C=2
```

"Why is LISP considered a 'better' programming language than BASIC?" you may ask. One reason is that there is no distinction between data and code in a LISP program. This can be very useful, in that you can construct a string of text as a program goes and then run it. The BASIC equivalent would be having a string variable containing "FOR I=1 TO 1000:NEXT" and then being able to run that text as BASIC commands.

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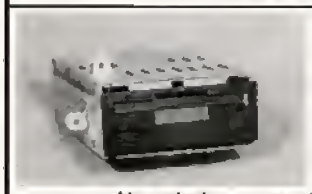

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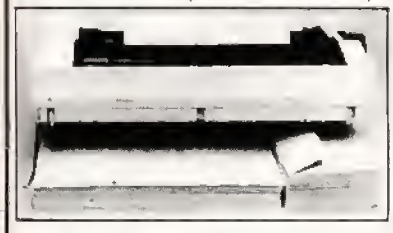

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TIP-OFFS

The pages with more power-packed tips than a pool room

Snookered in LocoScript? Baulked by your accounts package or spreadsheet? Give yourself a break with the next few pages! And if you know a trick shot or two, let us know, and you could pocket £30. Seeing the colour of our money this month is Philip Barrett of Cambridge who has hustled two-column printing out of LocoScript...

Two column LocoScript

Yes, it is possible; justified, two-column print from LocoScript, both columns perfectly lined up, without making ASCII files, without feeding the paper back into the printer or any other trickery!

The secret is in the layouts. Create your document and set up your layouts as follows:

LocoScript 2:

Via f1=Actions (Document setup) then f2=Layouts (Change stock layouts) change layouts 1, 2 and 3 as follows:

Layout 1: left margin 5 (f1); right margin 85 (f1); line spacing 1 (f4); justify on (f8).

Layout 2: left margin 5; right margin 43; line spacing 0; justify on.

Layout 3: left margin 47; right margin 85; line spacing 0; justify on.

[EXIT] back to editing the document and set up two phrases:

Phrase L: space, ten hard spaces (hard spaces are [+]-space), [+]LT1, [RETURN], [+]LT2, [RETURN]

Phrase R: space, ten hard spaces, [+]LT3, [RETURN]

LocoScript 1:

Edit the base layout to the same description as 'Layout 1' given above. [EXIT] several times to return to the document and set up two new layouts via the 'f2=Layouts' menu:

Layout 1: as 'Layout 2' above

Layout 2: as 'Layout 3' above

Phrase L: space, ten hard spaces, [-]LT, [RETURN], [+]LT1, [RETURN]

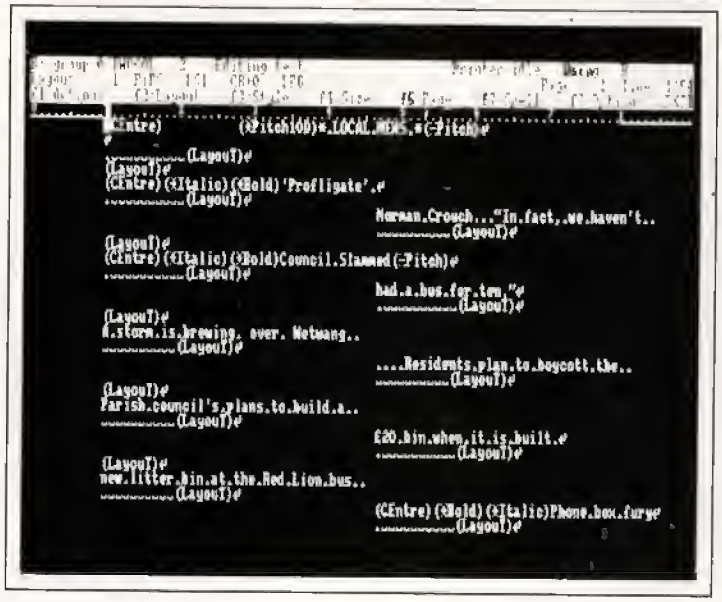
Phrase R: space, ten hard spaces, [+]LT2, [RETURN]

You can check the spaces in the phrases by 'showing the spaces' (f7 in Loco2, f1 in Loco 1, cursor to 'Spaces' and press [+]). Soft spaces are shown as a small triangle, hard spaces by a character like the bottom quarter of a square.

Using the arrangement sounds complicated but is actually quite quick and easy. First, [PASTE] L and type text in until one word wraps to the next line. Delete that word so you only have one line left; press [PASTE] R and then [PASTE] L and type the next line similarly. Carry on until this, your left-hand column, is as long as is required. Now move to the top of the right column – if you show the spaces as above there should be a triangle at its top left hand corner. Place the cursor on this triangle and continue typing in your text. When you get to the end of the line, a word will wrap to the line below; delete this extra word, then move the cursor down to the triangle at the start of the line below and carry on similarly.

If you use two-column print regularly it would save time to create a template with a whole page full of [PASTE] R [PASTE] L combinations which can then simply be filled up as required. Note that features such as bold, italic and pitch changes must be retyped at the beginning of every new line, because the layout changes will reset them. Also you can't edit, as if you change any line lengths once the document's been set up the thing goes haywire.

Philip Barrett
Cambridge



* LOCAL NEWS *

Profligate'
Council Slammed

A storm is brewing over Wetwang Parish council's plans to build a new litter bin at the Red Lion bus "Nobody's used the stop for resident

Norman Crouch. "In fact, we haven't had a bus for ten."

Residents plan to boycott the £20 bin when it is built.

Phone box fury

Meanwhile the jammed phone box in Pig Lane has been at the centre of seven years,"

Sorting cardbox files

Cardbox is an excellent database, reasonably priced and simple to use. Its one drawback is that it can't sort, but regular 8000 Plus readers will have all the tools they need not only to sort the file, but to make a neatly formatted LocoScript document of the sorted database as well, which you can even add bolds and italics to.

You will be using four discs – the CP/M and LocoScript discs, the disc with your Cardbox database, and a new disc onto which you have copied three files, PIP.COM, BASIC.COM, and one of the sorting programs which appeared on page 56 of the September issue of 8000 Plus – call this file SORT.BAS.

Let's assume you have a Cardbox database of books called BOOKS.FIL you want to sort into alphabetical order of authors. Use a format which only shows the fields you want in the order you want them. The fields to be sorted on should come first.

Load up Cardbox, select Use, and load up BOOKS.FIL. Type `FO` and indicate the .FMT file you will be using. Type `WR` and [ENTER], `M` until the mode is WS, then type `S` until Beginning is displayed, then `O` for output file, which you can call M:BOOKSWS. Press [RETURN],[EXIT], and `G` for Go.

Quit Cardbox and copy BOOKSWS onto the disc with PIP, BASIC etc. on it with the command `PIP A:=M:BOOKSWS`.

With this same disc in the A drive still, type `BASIC SORT` and give the file name to be sorted as BOOKSASC and the result file name as BOOKSORT. When 'Ok' appears you have a sorted file on your disc.

Load LocoScript and insert your new disc. Create a new file called BOOKLIST and put in tab stops at each place where a field starts, to arrange the list in columns of author, title, etc. Select "Insert text" from the 'Actions' and choose BOOKSORT as the file to insert. Your book list appears: use the [EXCH] command to change all "," to tabs, and then all " to nothing. You now have a columned, sorted list.

A nice feature of this method is that if the title is the second field, all the books by the same author will be sorted alphabetically by title too. You can now beef up the file with Loco's bolds and italics and so on.

Maggie Rugg
Exeter

● *Programs are available, free to Public Domain subscribers, which will sort Cardbox files. One such program is SORTV13.COM. Details of Public Domain libraries can be found in this month's PD article on page 68.*

Interesting characters

There are a number of interesting characters you can print to the screen in BASIC to make boxes and various fancy shapes. They are produced via statements like PRINT CHR$(n) where n is a number between 128 and 157, and it's handy to keep a list of which number produces which character pinned up by your PCW. You can produce it by running the following short BASIC listing and taking a screen dump by pressing [EXTRA]+[PTR] – unfortunately this is the only way you can get them printed out; you can't use them in LPRINT.

```
10 PRINT TAB (10) "ASCII
character symbols":PRINT
20 FOR a%=122 to 160 STEP 3
30 PRINT TAB(10) a%; " ";
CHR$(a%); TAB(30) a%+1; " ";
CHR$(a%+1); TAB(50)a%+2;
" "; CHR$(a%+2)
40 PRINT: NEXT: END
```

Barry Moody
Camberley, Surrey

```
run
          ASCII character symbols
   122  z     123  {     124  |
   125  }     126  ~     127  0
   128  ▮     129  ±     130  ▮
   131  ▮     132  ▮     133  ▮
   134  ▮     135  ▮     136  ▮
   137  ▮     138  ▮     139  ▮
   140  ▮     141  ▮     142  ▮
   143  ▮     144  ▮     145  ▮
   146  ▮     147  ▮     148  ▮
   149  ▮     150  ▮     151  ▮
   152  ▮     153  ▮     154  ▮
   155  ▮     156  ▮     157  ▮
   158  ▮     159  ▮     160  ▮
Ok
```

Protext page lengths

If you've gone to the trouble of setting up an address list file in Protext to do your mailmerging run, you may want to print out the names and addresses from your ADDR file directly onto envelopes. It is probably best to do the envelopes in one batch after the main printing session.

One problem is that no matter what page length you tell Protext to use, the printer still thinks you are using 70 line A4 paper. It will therefore roll the platen round for a few seconds after each envelope, which is tedious if you've dozens of letters to do.

What you have to do is use a separate command to tell the printer to change its page length too. A letter such as this:

```
>pl 15
(blank)
>oc 27,67,15
>sm 35
>rv name add1 add2 add3 add4
&name&
&add1&
&add2&
&add3&
&add4&
```

The 'oc' sends the 'escape codes' 27,67,15 to the printer, which tell it to treat each page as if it were 15 lines long. Whatever page length you choose, make sure that the number on the 'pl' line and the last number on the 'oc' line are the same.

9512's will feed envelopes directly through the printer, but on 8000 machines you may need to print on labels.

Moving your printer

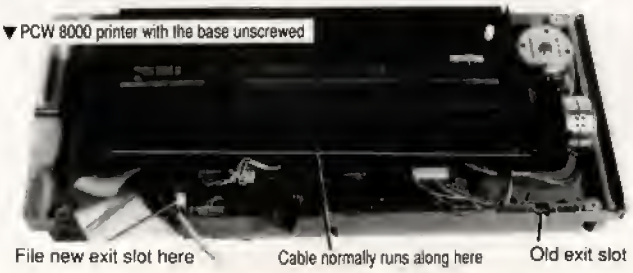
The cables between the PCW and printer are fairly short, and as the printer port on the PCW is on the right hand side as you look at it from the front, the printer has to be on the right too. For many situations this may be inconvenient.

However, if you don't mind invalidating your guarantee, you can easily modify it so it will go on the left of your PCW. The ribbon and power cables enter the printer at the back on the left but then run inside the housing all the way to the right hand side where they join on to the internals; so, by pulling this slack out and adding new exit slots with a file, you can make the cable come out on the right hand side.

First remove the six screws on the underside of the printer, gently prise off the two parts of the black plastic knob at the right, then lift off the top half of the casing. You'll see the cables running all along the back from left to right. Ease this extra eight inches out (you may have to unscrew the bottom half of the casing), file new exit slots, and reassenble. Your left-handed printer is ready to go.

Chris Lilley
Falkirk, Scotland

▼ PCW 8000 printer with the base unscrewed



Quick copyfiles

You can copy BASIC programs from one disc to another without leaving BASIC as follows: with BASIC running, insert your first disc and LOAD "filename. Change the disc, press the left cursor key, then press the [+] set key (next to the space bar on the 8000 machines) and type SAVE then press RETURN. The file is copied onto the new disc. (This doesn't work for files which aren't BASIC programs.)

Roy W Archer
Saffron Walden, Essex

Desert Island Tip-offs

The recent questionnaire showed that many 8000 Plus readers are stranded on a remote desert island with only a PCW, inexhaustible supplies of continuous paper and a 240 volt 50Hz power socket. In the same situation, which eight tips would you want with you? This month's anthology is on making LocoScript layouts look impressive...

1. Hard options

A feature of wordprocessors is their ability to handle hard and soft characters to keep your line-breaks neat and tidy. Experienced PCW owners use them all the time and it's a good habit to get into.

Things separated by hard characters can't be split at the end of a line; for example, typing D.J. Smith near the end of a line could result in the D.J. and Smith being split if you subsequently edit the text. But putting a 'hard space' between the D.J. and Smith (obtained by pressing the [+] key and then the space bar) means they'll never be split.

Similarly, 'hard hyphens' ([+] and a hyphen) should be put in phrases like 'rip-off' and 'cock-up' to keep the two halves of the word on the same line. If you just put a normal hyphen you could find that editing later on gives you "rip-" at the end of one line and "off" at the beginning of the next, which can look strange.

2. Soft options

Soft characters only appear if a word or phrase needs to be broken over two lines – for example, the phrase "Calcutta/Madras/Bombay/Bangalore" is treated as one word and will be put wholly on one line, possibly leaving a huge gap on the previous line and making the layout uneven. The answer is to put soft spaces ([-] and a space) after each slash – LocoScript will then break the phrase after one of the slashes *if* it needs to.

Soft hyphens ([-] and a hyphen) should be put liberally into long words in all documents. Soft hyphens only appear when they are wanted; if the word fits onto one line they stay hidden but if the word needs to split they'll come out. So, whenever you require the services of a lengthy word, put soft hyphens in at appropriate places: deoxyribo(soft hyphen)nucleic acid, etc. Those hyphens will only show when the word has to be split.

Normal hyphens and spaces are a mixture of soft and hard: they will always appear, but words may be spilt at the space or hyphen if required.

To sum up:

After *initials* put hard spaces: I V A Richards should be I(hard space)V(hard space)A(hard space)Richards

After *slashes* put soft spaces: red/green/puce should be red/(soft space)/green/(soft space)puce

In *hyphenated phrases* put hard hyphens: tip-off should be tip(hard hyphen)off

In *long words* put soft hyphens: anthropomorphological should be anthropo(soft hyphen)morpho(soft hyphen)logical

3. Half-size type

By writing text entirely as superscript seventeen pitch and selecting half line spacing you can produce a neat half-size type which is great for footnotes or the list of directors at the bottom of your business letter templates.

For footnotes, the reference number in the text is entered as [+]SR[+]B[+]P17 (which gives you the superscript and bold modes) followed by the number, then [-]SR[-]B[-]P. In LocoScript 2 you can get superscript numbers directly from the 'symbol' mode ([SHIFT]+[ALT]+[f7] and then type the number).

For the footnotes themselves enter [+]SR[+]B[+]P17[+]LS½, type the number and then [-]B, follow it with the text, and finish off with [-]SR[-]P[-]LS.

4. Headers and footers

A good place to experiment with LocoScript exotica is in the headers and footers of the template for your business or personal letters. In LocoScript 1 you get to the headers and footers by pressing f7=Modes (Edit header) and cursoring to the first header or footer, then f7, then f8, and select 'First page differs'. In LocoScript 2 it's f1=Actions (Document setup) followed by f5 (Header/footer options) and the 'first page only' option. You'll also have to select 'One page document: footer first page enabled' too.

A suggested layout is below. The bullets on the address line are only obtainable in Loco 2 ([EXTRA]+M) but in Loco 1 you could try

MegaSoft Systems International
25a Talpot Mews • Manila St • Bradford
Tel. 0274 624697

8000 Plus
4 Queen St
Bath
BA1 1EJ

4th December 1987

Dear Sir

We object strongly to the recent review in 8000 Plus, issue 12, in which your reviewer stated twice that our program MegaBase 4 was "not very good" and "the price of £99.95 seems a little excessive when similar programs can be bought for a quarter the price."

This sort of vicious and unwarranted invective is typical of you so-called journalists. You also failed to mention that MegaBase is the only database on the market with an automatic copy facility to make backups on the same disc.

Yours

John Smith
Marketing Director

something like [+]SR[+]B.[-]SR[-]B. The footer can contain your company directors and can use the small 'footnote' type described above.

5. These things are centre testers

For many applications (menus or concert programmes, for example) a pageful of centred lines looks very impressive. However, it can be tedious entering the centring command ([+]C in Loco 1 and [+]CE in Loco 2) at the beginning of every line. It is easier to set a 'centre tab' in the middle of the page – then at the beginning of each new line you just hit the tab key and everything will be centred.

To set your centre tab, make a brand new layout from the 'Layouts' menu and move the cursor to the centre of the dotted ruler line; in Loco 2, choose the relevant option from the 'tabs' menu (or press the [+] key three times) and your centre tab is set. In Loco 1, press the [f5] key. Exit back to the document and off you go.

6. In reverse

To clean up your screen you can set the PCW to suppress those codes – the (+Italics) and (+Bolds) – by selecting Options ([f8] Loco2, [f1] Loco1) and hitting [-]. However you often find to your dismay that one of the codes to turn italics off has been missed out somewhere, making the rest of the text come out italicised too. A neat solution is to set up a phrase (under I, say) consisting of [+]I[+]RV and one under J containing [-]I[-]RV. Whenever you want to put a phrase into italics, press [PASTE] I, and to turn it off [PASTE] J. It's just as quick as the usual method of [+]I and [-]I but makes all italic text highlighted, so you can't fail to spot any mistakes. A similar procedure could be used for setting and cancelling bold commands.

7. Underlining

Using [+]UL and [-]UL with your headings makes the underline very close to the letters; you can produce a line slightly lower down as follows. At the start of the heading text turn the 'codes' off on the options menu ([f8] Loco 2, [f1] Loco 1) and type [+]LS½[+]LP8. Then type the heading, hit return, and move the cursor underneath the beginning of the heading. Enter [+]LS1[+]UL, press space until the line is as long as the heading, type [+]UL[-]LP and carry on with the main text.

Instead of [+]UL, spaces, and [-]UL you can substitute [+]SB (for subscripts), then equals signs (or asterisks or any of LocoScript 2's exotic characters) and [-]SB for a variety of effects.

8. Loco 2 Layouts

Owners of LocoScript 2 have a couple of sneaky shortcuts open to them when setting up layouts.

The first involves tabs. When you are editing layouts the officially approved method of setting up tabs is to press the 'f3=Tabs' key to get a menu showing Simple, Right, Centre or Decimal tab. Then use the cursor keys and [ENTER] to pick the one you want. However, instead if using the menu at all you can just put the cursor at the column on the layout where the tab is to be and press the [+] key. Press [+] once for a Simple tab, twice for a Right, three times for a Centre and four for a Decimal.

The second is for setting the margins. Normally you would put the cursor at the position where the left or right margin is to be moved to and use the menus to shift the margin. Instead, put the cursor right on the current margin position and use the [+] and [-] keys. Pressing [+] moves the margin rightwards, and [-] moves it leftwards one column at a time. The margin will keep on moving as long as you keep the [+] or [-] key held down.

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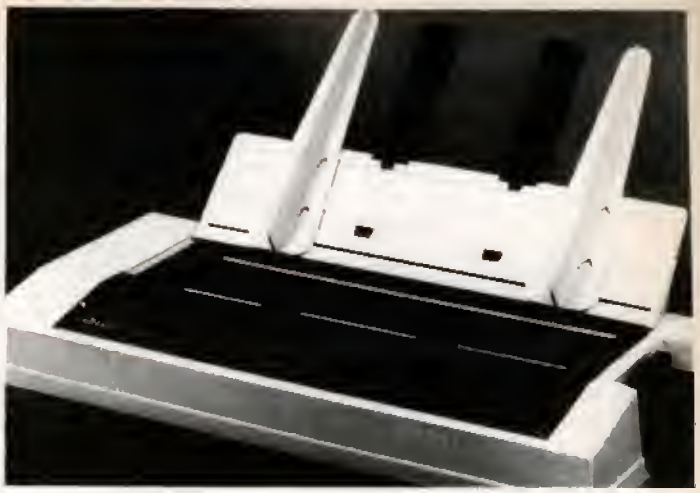

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These pages provide a comprehensive guide to the Amstrad PCW software. Published in three monthly parts, this time it's the turn of Databases, Education, Communications and Programming packages to face the ultimate test. We've set out to cover every important piece of software we could lay our hands on, and to give you enough information to decide whether they are suitable for you.

The software listed here represents what we consider to be the best of the many programs available. As well as a brief summary of what they do, the main Plus and Minus points for each program are listed – Pluses have a □ by them, and Minuses a ■. Those we think are particularly noteworthy have an corner flash on them.

To the best of our knowledge, all the programs here should run on both 8000 series machines and the 9512.

DATABASES

There are broadly two different types of database, and which suits you best depends, of course, on what you want it for.

Firstly there's the simple card index substitute. For many home users, this will be the kind of thing you want – all it does is store your address book or stock items so that you can easily look them up.

A more sophisticated option is the programmable database. With these, in addition to allowing simple card index retrieval there is a command language which allows you to analyse the data on the cards. For example, you could automatically add up the money owed to you by all your customers from Yorkshire. To make best use of this kind of facility, you will need to be able to understand a little programming, although it's not too hard really.

A bit of jargon now. A database is said to consist of records – this is just like a card in a conventional card file, with all someone's details on it. Each record is composed of fields – a field is a single entry on a card, like someone's name, or age, or postcode.

The thing that makes a database special is an index. You might be able to hold your address book as a simple list in a word processor document, but if it gets large then this becomes unwieldy. An index means that the database has worked out which order records should be in, so it can go straight to the one you want without looking at lots of others first.

The field that you use as your index (e.g. someone's surname) is said to be a key field, and can be looked up very fast compared to "non-key" fields. A good database will allow multiple keys, meaning that it can look up data just as fast for a variety of types of information.

Masterfile 8000 — *Best general buy*

£49.95 • Campbell Systems • 0378 77762/3

A specially written PCW version of the successful database sold on other Amstrad computers. It is fully menu controlled, and makes good use of the PCWs special screen and keys. It can deal with up to 8 separate data files at once, so can cope with relational databases. Screen (but not printed output) can be elaborately laid out with boxes, lines etc.

PLUSES • MINUSES

- □ Works fast
- □ Wide range of Layout options
- □ Handles 'relational' files
- □ Plenty of good example files
- □ Can do arithmetic calculations within its records
- ■ Capacity limited by size of M drive – best on an 8512
- ■ Takes a while to learn all the features

Condor 1

£99.99 • Caxton Software Ltd • 01-251 9494

Condor is firmly pitched at the dBase II market. Like dBase, it is not only a filing system but also a programming language that allows command procedures for complex data operations. It can handle very big records — 127 fields — handy for some things like questionnaire processing. The user interface is slightly ragged, and it lacks dBase's ability to index files for fast access.

PLUSES • MINUSES

- □ Very flexible record structuring and searching
- □ Better control than dBase over the screen format
- □ Command language for creating data processing programs
- □ Can handle big databases — up to 127 fields per record
- □ The manual is large, well written and understandable
- ■ No provision for fast data access by indexes
- ■ The on-screen prompting information is weak

Database Manager (AtLast) — *Good value*

£29.95 • Rational Solutions • 01-874 412441

Recently re-released with a new manual and a new price, At Last is a full-featured database that is excellent value for money. It does what Cardbox can, with much better reporting facilities, and can sort too. You can do simple totalling of columns, but not general arithmetic on fields in a record. Its claims to be a true 'relational' database like dBase II are a little grandiose, but a good general purpose database – recommended.

PLUSES • MINUSES

- □ The basic form layouts are generated automatically
- □ The data can be indexed on more than one item
- □ Good screen editing facilities
- □ Printed reports can include totals
- □ Subsets of records can be selected using sophisticated rules
- ■ Manual sometimes lapses into computerese
- ■ Page dimensions have to be specified every time you want to list things, even to the screen
- ■ Can't do general arithmetic within fields

Cambase

£49.95 • Camsoft • 0766 831878

Cambase is very strong on data security – you can define passwords to protect sensitive databases. It is driven by quite an intricate set of menus, and you'll have to plan your application carefully since the database format can't be changed once set up. Generally good for writing applications with.

PLUSES • MINUSES

- □ Sensitive data can be protected by a password system.
- □ Record structure can be conditional – e.g. "only have a 'spouse' field if status is 'married'"
- □ "Processes" provide for some simple automatic calculations
- ■ Over-protective user interface, which asks for confirmation of almost every command
- ■ Database main attributes are fixed after initialisation and can't be changed.
- ■ Doesn't have full screen editing of records
- ■ Manual needs an index, and is weak on explaining advanced topics
- ■ The (single) key field has to be entered separately to the record data proper

dBase II — *Raw but powerful*

£99.00 • Ashton Tate/First Software • 07357 5244

The WordStar of database packages. Recently licensed "cheaply" for Amstrad machines, dBase II is a market leader in

business computing. As you would expect, this means it is very powerful but very complex. It has a procedure language to allow you to write programs to manipulate the data, and you can construct index files for really fast access to large databases. If you can make the effort to learn it, it'll serve you well.

PLUSES • MINUSES

- □ Powerful command language for customised programs
- □ Indexing facility makes large databases fast to handle
- □ Can handle very big databases
- □ The data can be fairly easily altered after its entry
- ✱ Manual is daunting (but there are plenty of independent books on the market)
- ✱ Can't easily alter the screen record layout
- ✱ For an expensive package, you still only get 32 fields per record
- ✱ Generally unfriendly unless you have some programming skills

Delta — Powerful

£99.99 • Compsoft • 04868 25925

Delta is another of the heavyweights, like dBase II and Condor, but unlike them is fully menu driven. Although the screen layouts are fully flexible, there is a default "quick" layout so you don't have to sweat at defining your own. It could use better record indexing facilities. Particularly good for writing applications, once you have ploughed through the large manual.

PLUSES • MINUSES

- □ Records can contain up to 90 fields, plus groups of fields that may be repeated
- □ Screen layout can be user defined, or "quick" mode used
- □ Single page letter writer provides detailed mail-merge
- □ Processes can be defined, and run from user defined menus, for ease of use by others
- □ Very full, and quite readable, manual
- ✱ Only one field may be used for indexing
- ✱ Very big program – a PCW8256 would be hard pushed
- ✱ Some of the menu operations are unforgiving to errors

Pocket InfoStar

£69.50 • MicroPro DRA • 0386 841181

Consists of two large programs, DataStar and ReportStar (both available independently). DataStar is a conventional database, with screen card layout and indexing. ReportStar then generates the printed output, either from DataStar or CalcStar files. Powerful if you can use them, but the suite is horrifically overcomplicated, and the documentation just incomprehensible.

PLUSES • MINUSES

- □ DataStar is a quite good database with indexing and calculated fields.
- □ "Transaction processing" feature allows cross-referencing of data files.
- □ Can be integrated with other Pocket products, eg WordStar.
- □ Can take up to 255 fields per record
- ✱ Two-volume manual set is very badly organised.
- ✱ There are separate programs to run for form design, data entry and reporting.
- ✱ Operation is all by obscure command keys, à la WordStar.

Cardbox

£59.99 • Caxton Software Limited • 01-251 9494

As the name suggests, this database sets out to be a straight replacement for a conventional card index system. It doesn't provide any facilities for totalling up fields in different records, but does provide comprehensive ways of searching records. Very flexible screen layout, set up by a screen editor. Although a well established product, it is hard to see who would want a database which can't sort its data into order!

PLUSES • MINUSES

- □ Good control over the screen layout of each record (or "card")
- □ Can put any title or prompt text anywhere you like on the card
- □ The documentation makes Cardbox very simple to use
- □ Wide range of data patterns that can be searched for
- □ Elaborate indexes can provide efficient access to data
- ✱ No way to sort the data into alphabetical order
- ✱ No control language or field totalling facility
- ✱ Slow to access unindexed data

Cardbox-Plus

£99.95 • Business Simulations • 0892 863105

Business Simulations are the company who actually wrote the successful Cardbox database, and they are the sole distributors of their enhanced version Cardbox-Plus. Disappointingly, still no field totalling facilities, but it does boast sorting, index listing, disc management and an autosave feature as extras to Cardbox. The ultimate straight card index, if you have the money.

PLUSES • MINUSES

- □ All the facilities of the very successful Cardbox
- □ Cards can be sorted into order for browsing and printing
- □ "Autosave" will regularly store the data to disc in case of mishap
- □ Files created by Cardbox can be read
- □ Full and good manual, although the tutorial is at the end
- ✱ Still no way of performing numeric calculations
- ✱ A lot to pay for a few frills to the basic Cardbox

Smartcard

£59.95 • Focus Computer Sys. • 0272 420109

A conventional card index database which bears a superficial resemblance to Cardbox. As ever, you have to define your record format before you can enter any data. Small and fast, you can sort the records, index on up to 3 fields, and do simple arithmetic in fields. Can't put background text (eg. titles) on records or printouts.

PLUSES • MINUSES

- □ Good clear screens
- □ Plenty of on-screen help
- □ Fast and high capacity
- □ Easy to use
- ✱ Can't put background text on printed reports
- ✱ No way of exporting data for mailmerge

Microfile (Sold in The Micro Collection)

£49.95 • Saxon Computing • 0401 50697

Microfile is a well implemented simple database, driven by plenty of menus and on-screen prompts. It's fast and has good screen control, although it has some size restrictions. Microfile comes as part of a software suite,"The Micro Collection", which is good value (Microfile, Microwrite, MicroSpread, Flexilabel and Lock-It)

PLUSES • MINUSES

- □ The price includes competent word processing, spreadsheet, labelling and encryption programs
- □ Plenty of menus and on-screen prompting
- □ Very flexible formatting for screen layout and printing
- □ Numeric fields can be expressions to be calculated
- □ Indexing is fast and can be on several fields
- ✱ Maximum number of fields per record is only 20
- ✱ Limited facilities for totalling up fields in a database

DataStore II

£39.95 • Digita International • 0395 45059

A simple card index type of database written in Mallard Basic. Although it is quite slow in some areas, it does use index files which makes retrieval of individual records quite quick. It allows calculations on numeric fields and can print out totals and averages from your data files. Version II has data export and is much faster than its predecessor.

PLUSES • MINUSES

- □ Adequate performance on simple files
- □ The manual has a good introduction on explaining database jargon
- □ Numeric fields can be calculations, like in spreadsheets
- □ Good variety of printout formats
- ✱ Complex searches take a long time
- ✱ No data import/export facility

Chibase

£49.95 • Chiasma • 06333 60996

A 'free format' database, which means you don't have to go through the usual rigmarole of defining your record format before you can enter your data. Instead, you just type text into Chibase, mark the words to be indexed, and it can then treat that file as a database.

PLUSES • MINUSES

- □ Doesn't require you to set up a preset 'record' card
- □ Searches through your data very quickly
- □ Allows you to select up to 50 keys for each page of text
- □ Allows editing of text without a word processor
- ✱ No sample file for you to learn on

FT=DB — Simple & effective

£29.95 • Encyclasoft • 0270 811868

A free form database like Chibase, but instead of typing your text into the database itself, you create it on a wordprocessor first of all. Once done and edited to your liking, you mark all the word you want to be used as keywords (still in your wordprocessor) and then read it into FT=DB. Now you can treat it as a database, compile indexes, search for phrases and so on, all quite efficiently.

PLUSES • MINUSES

- □ Easy to use
- □ Versatile retrieval system over several text files
- □ Inexpensive
- □ Can move between index and text at will
- ✱ No editing facilities within FT=DB

First Base — Beginners' best buy

£29.95 • Minerva • 0392 37756

Billed as a simple database for the first time user, First Base is quite a competent cheap card index. The manual is computer printed, and weak on diagrams which doesn't help things. One weakness is getting printed results out of First Base – either you settle for crude lists, or you have to create a template in LocoScript which is awkward to do. But overall, for simple applications and beginners, it's pretty good value for money.

PLUSES • MINUSES

- □ Can alter the index field at any time
- □ Simple to use screen editing make data entry easy
- □ Good value as a simple card index lookup system
- □ Can easily browse through the database picking out a set by hand
- ✱ Manual is badly laid out and generally difficult
- ✱ Producing printed output is awkward

Magic Filer

£69.95 • Sagesoft • 091 284 7077

Magic Filer is not a true database, but is a structured filing system. Information is split into a hierarchy of categories, and tagged with a keyword which is not stored as part of the data. You can browse through the data, but it will get tedious if you find it needs updating regularly. Many applications will find Magic Filer restrictive.

PLUSES • MINUSES

- □ Good for browsing through data when you don't really know what's there
- □ Data can be declared "read only" to protect it from alteration by other browsers
- ✱ The basic filing system is weird but not wonderful
- ✱ Editing data once in Magic Filer is awkward
- ✱ The documentation is far too brief
- ✱ You can only have one database per disc

Datafile One

£30.00 • Datarun • 0332 810789

This database is both a low cost card index system and a mail merge utility specifically designed to work with LocoScript 1. As a card index, it's quite good for personal use, and the mail merge is simple but effective. Good value for money. The documentation is in the form of a database on the delivery disc.

PLUSES • MINUSES

- □ Data can be range checked as it is entered
- □ Complex masks can be used for searching the database
- □ Quite fast record access for a low cost package
- □ Report section (the mail merge) uses LocoScript documents for templates
- □ LocoScript text styles (bold, italic, etc.) can be used
- ✱ The screen editor for designing layouts is a bit too simple to be effective
- ✱ No conditional processing in the mail merge section
- ✱ The on-disc documentation is a nice idea, but cumbersome in practice. Needs a proper manual.

File Manager

£99.95 • Sandpiper Software • 0978 355333

A database with the power to handle full relational applications. Unfortunately the manual is so badly written that the power is hard to get to. For the money, there are better systems around.

PLUSES • MINUSES

- □ Potentially a powerful and flexible system
- □ 'RAPID' generator can produce simple files quickly
- ✱ Appalling manual
- ✱ Poorly customised for PCW use
- ✱ The full system is very complex to use

Matchbox

£29.95 • Quest International • 04215 66488

A cheap, no-frills card index type database. The manual is only 13 pages long, so you had better know you to use a database before you buy this. You can't customise screen layouts, but you can print labels. Would suit a simple booklist or address list, if you really can't afford better.

PLUSES • MINUSES

- □ Clear on-screen menus guide you through the program
- □ Can search for fragments of words in a record
- ✱ No control over screen layout
- ✱ Skimpy manual (13 pages) has almost no examples
- ✱ All characters have to be upper case
- ✱ Only a single index field is allowed
- ✱ If you type fast, you will lose characters

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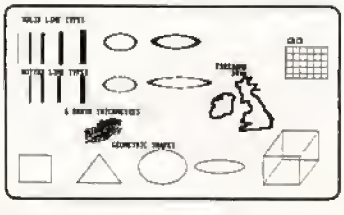

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33 CONALAN AVENUE, SHEFFIELD, S17 4PG

EDUCATIONAL

Cornix Card-Index — Good value
£34.95 • Cornix Software • 0462 682989

A good standard cardbox with sorting on any field and a neat feature where names can be entered as Smith [John] for correct indexing but will print out as John Smith. Selection can be done in any combination of fields on a basis of words or fragments of words appearing in records. There are no numeric functions and numerals are treated as strings, so for example £89256.19 will be sorted before £9 and 3-9-87 before 6-1-86. You can print out any selection of the fields in reports, though the format is restricted to one field to a line.

PLUSES • MINUSES

- □ Sorts on any field
- □ Names printed in given name-surname order
- □ Selection over combined fields
- □ Simple but effective
- ▪ No import/export of data
- ▪ No numeric calculations
- ▪ Dates, numbers must be entered carefully to be sorted correctly
- ▪ Only one data file can be put on each disc

Sagesoft Retrieve
£70 • Sagesoft • 091-284 7077

A high-power package that is relatively easy to use with password security if desired, calculations, automatic counting or deletion of sets of records satisfying given conditions, sophisticated sort and select commands, and the ability to change the structure of an existing database. All this is done by a set of commands rather like a programming language. Printed formats are rather limited though and the program insists on using both drives, making use on a 8256 impractical.

PLUSES • MINUSES

- □ Easy to use for a powerful package
- □ Advanced sorting and selection commands
- □ Subsets can be written to files
- □ Can count or delete subsets with one command
- □ Labelling/mailmerging routines included
- □ Can change structure of existing database
- ▪ Impossibly big program for 8256
- ▪ Printed output limited – must use mailmerge

File'n'find — Cheap!
£9.95 • Lentronic • 48 Elmete Mount, Leeds LS8

A budget database which aims to provide a simple no-frills service. Programmed in Mallard BASIC it looks a bit ragged, but works fairly swiftly. If all you want to do is catalogue a collection, it could be an extraordinary bargain.

PLUSES • MINUSES

- □ It's very cheap
- □ Has all the necessary features for simple inventories
- □ A potential source of programming tips for Jetsam programmers
- ▪ Amateur and unfriendly way of working
- ▪ Maximum 8 fields per record
- ▪ Unhelpful manual full of programming jargon
- ▪ Cumbersome retrieval and editing facilities

Homeview
£195.44 • Cavalier/Load & Run • 0322 72116

A specialist database for the Estate Agenting business. Costs a lot, but then all you estate agents should be able to afford it from your outrageous commission fees (yes, the 8000 Plus staff have all recently moved house). You specify required area, no. of bedrooms etc, and get a list of suitable vendors or buyers. Works well.

PLUSES • MINUSES

- □ Once set up, simple enough for non-computerate staff
- □ Makes up mailshots from LocoScript
- □ Can adjust property categories to suit
- □ Impresses your customers!
- ▪ There will always be clients whose requirements don't fit your system
- ▪ Very expensive

Iankey Crash Course — Best basic course
£24.95 • Iansyst • 01-607 0187

A fairly traditional typing tutor, taking you through basic keyboard exercises. There's a lot of explanatory text, which gets in the way second time around. Definitely competent, but a bit boring.

PLUSES • MINUSES

- □ Mostly avoids boring letter drills
- □ Very full on-screen information guides you along
- □ "Fast" option cuts out some text if it gets repetitive
- ▪ Not particularly imaginative use of graphics
- ▪ It doesn't always ensure that the cursor is properly aligned with the exercise text

2 FingersTouch Typing — Improvers' best
£24.95 • Iansyst • 01-607 0187

Despite its provocative name, a useful typing tutor in that it specifically caters for people who can already get by on keyboards with two fingers. You are gradually introduced to touch typing, so your speed doesn't drop while you learn. Fills a necessary slot in the Typing Tutor market.

PLUSES • MINUSES

- □ Suitable for improving two-finger typists without much drop in speed
- □ Full on-screen instructions
- □ Exercise text is interesting paragraphs, not letter drills
- ▪ Explanation text is annoyingly verbose in some lessons
- ▪ It doesn't always ensure that the cursor is properly aligned with the exercise text

Touch 'n' Go
£24.95 • Caxton Software • 01-251 9494

A very traditional typing tutor, with no attempt at interesting screen presentation. Letter drills are rigorously pursued, making for good typing practice if you can stick to it. Also has number keypad tuition for data entry operations.

PLUSES • MINUSES

- □ Methodical letter drills enforce good practice.
- □ Provides number keypad tuition as well as letters.
- □ Instruction screens are optional, so can be cut out for speed.
- ▪ Gives a flattering error rate, since it allows you unlimited use of the delete key.
- ▪ Doesn't tell you how to make the number keypad actually work on the PCW!
- ▪ Boring use of the screen. You need to really *want* to learn.

Animal Vegetable Mineral • World Wise
£14.95 each • Bourne Educational • 0794 523301

Aimed at the younger market, 7-15 year olds. Both these programs work by learning as the child uses them. Think of an object and the computer tries to guess it. If it is wrong, the child is asked for a question which would allow the PCW to be right next time, and it learns.

PLUSES • MINUSES

- □ Can be used as many times as the child's imagination holds out
- □ Performance can be analysed by a teacher after a session
- □ As you build up a base of objects and questions, they can be saved for reuse
- ▪ It needs a lot of typing, hence a lot of supervision
- ▪ The PCW starts with only two objects known , so it takes time to get going
- ▪ Documentation has hardly been altered from cassette-based versions
- ▪ Since it is for young children, more imaginative use of the screen would be nice

Better Spelling
£12.95 • School Software Ltd • 010 353 61 27994

This is a spelling course aimed at the 8 to adult age group. It consists of a series of well organised, short lessons each dealing with one topic, like plurals or which version of there/their/they're to use in a sentence. The use of the PCW screen is rather unimaginative, and doesn't hold your attention.

PLUSES • MINUSES

- □ Well thought out lessons to emphasise particular points
- □ Teaches words in a sentence context as well as in isolation
- □ Lessons can be picked in any order from a menu
- □ Seems to be proof against mischievous key pressing
- ▪ Boring use of the screen doesn't grab interest
- ▪ No instructions come as to how to use the program.

Chemistry • Biology
£12.95 • School Software • 010 353 61 27994

These two are fairly traditional question-and-answer tests. You are faced with a choice of 10 topics, and then asked 10 or so questions each, where you have to fill in the blank in a statement. There are preamble notes beforehand, and if you get it wrong you are given a clue. Aimed at 12-16 year olds.

PLUSES • MINUSES

- □ Questions would challenge a GCSE pupil well
- □ Preamble notes introduce topics
- ▪ The fill-in-the blank questioning style has little flexibility for different answers
- ▪ No option to add questions for a specialised syllabus
- ▪ Some careless errors, like incorrect facts and hard to decipher chemical formulae

Micro Maths — Well designed
£24.95 • LCL • 0491 579345

Supposedly covering 8 to adult ages, this seems an O-level type program, covering topics from caculus to tables. A good implementation on the PCW with proper use of the screen. Questions are picked at random from a pool, so may repeat but never run out. Replies to questions are typed in mathematical notation, like X^2+3

PLUSES • MINUSES

- □ You can pause to use BASIC as a calculator while you think
- □ 'Unlimited' question set
- □ Comes with a 'free' book of AEB O-level questions
- □ Good hints and explanations when you get an answer wrong
- ▪ Questions in a topic repeat occasionally
- ▪ Some trills, like the clock and beeper, are annoying
- ▪ No flexibility to add questions for a particular syllabus

Amstat 1,2,3 and 4
£30-ish • Coleman • Ashby-de-la-Zouch LE6 5DA

A suite of four statistical routines including a business analysis program, forecasting and resource management. Individual prices range from £27.95 to £39.95, all four cost £99.95. Sophisticated but perhaps awkward for beginners.

PLUSES • MINUSES

- □ Good range of statistical functions
- □ Good manual
- □ Can produce fair quality graphical results
- ▪ Some editing procedures very long-winded
- ▪ Needs some expertise to use properly
- ▪ Weak on checking that input data is reasonable.

Oxstat
£113.85 • Medstat Ltd • 0602 411120

This is a specialised statistical analysis package for the PCW. Functions from calculations of means to multiple linear regression are covered, and it can do some rudimentary graphics for results. You can read data from spreadsheets or external devices.

PLUSES • MINUSES

- □ Comprehensive range of statistical functions implemented
- □ Good screen editing facilities for entry of data
- □ The speed seems acceptable, even though it is written in BASIC
- □ Even complex analyses are easily entered by simple menus
- ▪ Weak on graphical presentation of results

Yes Chancellor! — Different!
£14.95 • Topologika • 0733 244682

Wait! Don't skip over Yes Chancellor! because it calls itself an 'economic simulation' program. Instructive and fun to use, you type in your annual budgets (tax rates, public spending etc.) and see your popularity plunge and the economy crash. Great for economics classes, also an amusing game in itself.

PLUSES • MINUSES

- □ Simple but effective model of the economy
- □ Comes with booklet explaining economic principles
- □ Great for teaching economic and political pragmatism!
- ▪ Can get boring as a game
- ▪ You can't adjust the model of the economy, so it can be too simple

THE GOOD SOFTWARE FILE

PROGRAMMING • COMMUNICATIONS

PROGRAMMING

HiSoft C
£39.95 • HiSoft • 0525 718181

A very good C compiler, fast, produces good compact code.

PLUSES • MINUSES
- ☐ Compiles program into ordinary CPM .COM file
- ☐ Produces compact code
- ☐ Fast and inexpensive
- ✱ No floating point arithmetic

Arnor C
£49.95 • Arnor • 0733 239011

Good compiler with floating point arithmetic, but not as fast or as cheap as HiSoft C.

PLUSES • MINUSES
- ☐ Excellent integrated text editor
- ☐ Floating point arithmetic
- ✱ Cumbersome to produce .COM files, needs special run time support program
- ✱ HiSoft C is faster and cheaper

MIX C
£29.95 • Advantage • 0844 52075

American C compiler. You can buy a full screen editor with it for £19.95 extra. Also machine code assembler & examples for £8.95 each.

PLUSES • MINUSES
- ☐ Features a C tutorial
- ☐ Comprehensive implementation and massive manual
- ✱ Not for the newcomer to programming

Pascal
£39.95 • Hisoft • 0525 718181

A standard full Pascal compiler

PLUSES • MINUSES
- ☐ Well integrated text editor – when you hit a compilation error you are returned to the correct point to edit it
- ☐ Short compilation time, economical on memory
- ✱ Manual makes no attempt to teach you Pascal

Forth
£19.95 • Hisoft • 0525 718181

Forth is an unusual language, somewhere between assembler and C. This is one of the few compilers available for the PCW.

PLUSES • MINUSES
- ☐ Comes with a Forth editor
- ☐ Quick and efficient implementation
- ✱ Manual doesn't teach you Forth

Modula 2
£45.00 • FTL/Grey Matter • 0364 53499

A compiler. Modula-2 is the successor to Pascal, good for large programs requiring separate compilation.

PLUSES • MINUSES
- ☐ Full implementation with extensions.
- ☐ Includes libraries of predefined modules
- ☐ WordStar-type screen editor included
- ✱ Compilation process is longwinded and not for beginners

ZBASIC
£75.00 • Zedcor/Grey Matter • 0364 53499

Compiler

PLUSES • MINUSES
- ☐ 400 Page manual, not badly written
- ☐ Compatible with Microsoft BASIC, hence simple Mallard programs (not Jetsam)
- ☐ Extensions like extended IFs, REPEAT ... UNTIL
- ✱ No direct access to CP/M from ZBASIC
- ✱ Seems to reject some statements as 'too complex'.

The VICAR
£29.95 • Iansyst • 01-607 5844

A programming tool for serious programmers. If you have a several-hundred line program held in several files on a disc, you can lose track of which variables are used where. The VICAR produces a concordance listing and other diagnostics, to help you find bugs and maintain the program.

PLUSES • MINUSES
- ☐ Easy to use but still flexible through use of options
- ☐ Amstrad versions all at a special low price
- ☐ Good manual
- ✱ Only of value on large programs
- ✱ Limited value to most PCW users (except BASIC buffs)

It's BASIC (Vols 1 and 2) — *Good value*
£7.95 each • Nabitchi • 051-708 8775/0123

Games with a more serious intent. These discs provide 20 simple games and applications each, and allow programmers to look at the BASIC to see how it's done and to adapt it for their own programs. You can play music on your CP/M and create your own Space Invader figures.

PLUSES • MINUSES
- ☐ Twenty programs at rock bottom price.
- ☐ Invaluable tips for programmers.
- ☐ Costs little more than a blank disc.
- ✱ No tutorial guidance.

COMMUNICATIONS

Communications is one of the glittering areas of computing, gurus would have you believe. It can provide a fascinating hobby for 'hackers', but more importantly it is a valuable business tool.

'Electronic mail' is just what it says: you use your PCW to send messages, which can be documents thousands of words long, to others on the electronic mail system. The best known system of this kind is Telecom Gold, which also allows you to send telexes. Another major system is Prestel, which is more of an information provider – you can read share prices, weather information and other news direct from your phone line.

For any professional service, you pay a registration fee, plus a connection charge – typically around 10p per minute you use the system. Of course, your phone bills are extra. For hobbyists there are also 'Bulletin boards', which are effectively a kind of private electronic mail system run by a system operator (a 'sysop' to those in the know).

To use any service, you will need to buy a modem and an interface. A modem allows you to send computer signals down a phone line, and the interface gets the signals from your PCW to your modem. The pair will set you back £200 or more. Once done, you need some software to allow you to send and receive data, and it is this software reviewed below.

Electronic mail services just send strings of characters to and fro, whereas Prestel is a 'Viewdata' system, meaning it sends pictures and graphics too. Software needs to do more to receive Viewdata graphics, so if you want to use Prestel make sure your software is up to it.

8256UKM7.COM — *Public domain*
Public domain (ie. free!)

P.D. software documentation is often poor but this program has an above average document file. UKM7 was written to support ASCII file transfers using error correction and as a dumb terminal either for use over the phone or between two Amstrads. Between two PCW's file transfer is possible at a staggering 31,250 baud which is even faster than PIP! Easy to use for beginners and better than KERMIT, UKM7 provides a cheap and excellent way to communications after you've got fed up with the PCW's MAIL232. 8256UKM7 is available from the Public Domain Special Interest Group, or most bulletin boards supporting the PCW machines.

PLUSES • MINUSES
- ☐ Cheap! (the price of a phone call)
- ☐ Easy to use, and helpful menus
- ☐ Both CRC and Xmodem protocols supported
- ☐ Single file and Batch Mode transfers
- ☐ "Quiet" mode for slightly faster transfers (on-line transfer progress report disabled)
- ✱ Only ASCII, no Viewdata
- ✱ You need to find a PD software source (eg. use a modem and MAIL232 software)

CHITCHAT E-MAIL/VIEWDATA/ COMBO
Sagesoft • £69.99/£69.99/£99.99 • 091 284 7077

Two communications programs for the 8000 series machines that have been around for a good time now. Most of the features you will need are here: message text editor, preprogramming unattended tasks(if you use a suitable "intelligent" modem), directory of stored numbers, copy to printer, and a very useful connect time clock so you can watch your phone bill climb! E-mail is used for simple text phone links like Telecom Gold, whereas you'll need Viewdata if you want to use Prestel. The Combo pack contains both E-mail and Viewdata.

PLUSES • MINUSES
- ☐ Good, clear documentation
- ☐ Easy for first timers to use
- ☐ Built in text editor for pre-sending message preparation
- ☐ Pre-definable tasks executable at any preset time if unattended.
- ✱ No error corrected file transfer (i.e. Xmodem or CRC)

Dialup — *Easy to use*
£89.99 • PMS Communications • 021-643 7688

Offers both E-mail and Viewdata operations. Very easy to use, and offers an XMODEM transfer protocol unlike Sage ChitChat. If you are buying a modem too there are some cut-price bundled deals to be had, eg. the Miracle Technology WS4000 modem.

PLUSES • MINUSES
- ☐ Simple to use
- ☐ Comprehensive file transfer commands, including XMODEM and the increasingly popular KERMIT
- ☐ Runs from the M drive
- ✱ Manual is not PCW specific, and the references to 5.25" discs are tedious

COMM+ — *Powerful & versatile*
£86.25 • NewStar • 0277 220573

This single package combines both ASCII and full Viewdata block graphics and Telesoftware downloading. A very powerful command language allows you to look for particular messages coming in and take actions, even while doing other things. Its use is only limited by your programming ability.

PLUSES • MINUSES
- ☐ Very comprehensive and well indexed ring bound manual
- ☐ High quality Viewdata graphics
- ☐ Well presented on-line help menus for use by beginners
- ☐ Autodialler program works with most manual modems
- ☐ Telesoftware downloading facility, with CRC/Xmodem checking
- ☐ Very powerful command language, doesn't need much programming skill to learn
- ✱ Not recommended for absolute beginners to communications

NEXT MONTH

The guide continues next month with the categories of SPREADSHEETS, GRAPHICS and GAMES . The month after that will cover WORDPROCESSORS, ACCOUNTS/ PAYROLL, UTILITY and DTP software, and the month after that it's back to this month's topics.

Our intention is to keep publishing the three parts of the guide in rotation, updating it each month to include all new products. If you would like to see other sections of the guide, back issues of 8000 Plus are available at £1.75 each.

Meanwhile, if you are aware of any significant omissions or errors in the File as published, please let us know. We intend to maintain it as THE authoritative guide to PCW software.

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COMPLEMENT is software designed for use with Electric Studio's NEWSDESK INTERNATIONAL Desktop Publishing and ART Graphics packages. This advert is using material from the disc, which is yours for only.....£12.50

What do you get for the money? Well.....
...it contains some new Fonts (including Art Deco and Art Nouveau), and two new ideas..... Texture Fonts (which act like type-in fills for larger patterns) and Borders (kits of snip-art that assemble to make professional borders for your pages or adverts).

Texture Fonts are large 30x32 pixel patterns that can be used to fill areas with textures other than the 55 available in the DTP package. There are three on the disc, Surfaces (Brick, Stone, Tiles, Wood, etc.), Cartography (Dunes, Marsh, Woods, Rock, etc.) and Patterns (Fishscale, Drops, Cubic, Weave, etc.) with room for you to add more if desired.
The Borders consist of Corners (left & right), Horizontals, Verticals, individual Elements and, for the Art Deco and Art Nouveau kits, various Ends (again horizontal and vertical). By assembling the sections of snip-art you can rapidly give your artwork or page an 'edge' above the rest.

The disc also contains a Locoscript file of hints and tips, gained through much use of the package, as well as clear instructions on how to use the Texture Fonts and Borders.

The disc (including Recorded Delivery postage in UK.) is obtainable from:

Dragonfly Designs
58, The Shrublands, Horsford, Norwich, Norfolk, NR10 3EL.

MONEY FROM YOUR AMSTRAD

Got a PCW? Or just thinking of buying one? Either way you can't go wrong, the PCW is the perfect small business computer. Did you realize, though, just how many ways there are of making money with one? I don't mean running your own business, but carrying out simple tasks for other people. Tasks which are well paid.

Experienced user or beginner, we can show you how to make real money, full or part time, providing straightforward computer services. No programming, no hard selling, no hassling, and you operate at home. Companies spend more every year on computer sevices. Don't miss your oportunity in this exciting and growing field!

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CARD FILE IN A MUDDLE?
Let CHIBASE help sort it out!

CHIBASE is specially designed and written for the PCW by Chiasma Software

Putting your notes or abstracts on **Chibase** is really easy, and Chibase helps you to find just the ones you need by means of keywords.

This is how Chibase could work for you:

- You can use Chibase to replace an indexed cardfile or notebook. A Chibase record corresponds to a card in the card in the cardfile or a page in the notebook.
- Chibase includes a simple text editor which enables you to enter and amend your record text on the screen. As you type in or amend your record text, you can nominate one or more words as keywords. A single key command nominates the word at the cursor as a keyword, and the word becomes highlighted.
- A single key command causes the edited text to be stored as a record on the database. The keywords will be stored in an index. The software uses the index to find records.
- You can selectively retrieve records by means of an enquiry which is just a list of keywords. Those records which include the listed keywords will be retrieved. You can also retrieve only those records whose keywords include some minimum number of the keywords in the list.

Some features of Chibase

- **Fast** and **easy** to use : No complicated syntax to learn.
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  The index can distinguish between upper and lower case characters if required.
- **Form** facility, if required, helps you to position text within the records. Move between parts of the form by pressing the TAB key.
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We have limited quantities of the back issues listed below. The prices include a nominal 25p postage. All issues contain excellent TipOff sections and a selection of BASIC listings, plus the other regulars. Don't miss the chance to expand your collection.

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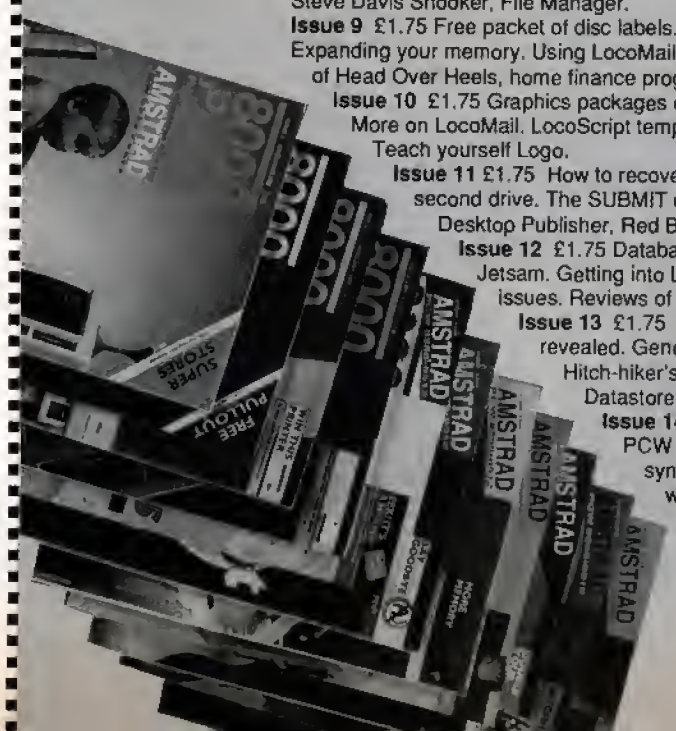

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OFFICIAL BASIC MANUAL

Only £9.95 – with FREE pack of highlighter pens!

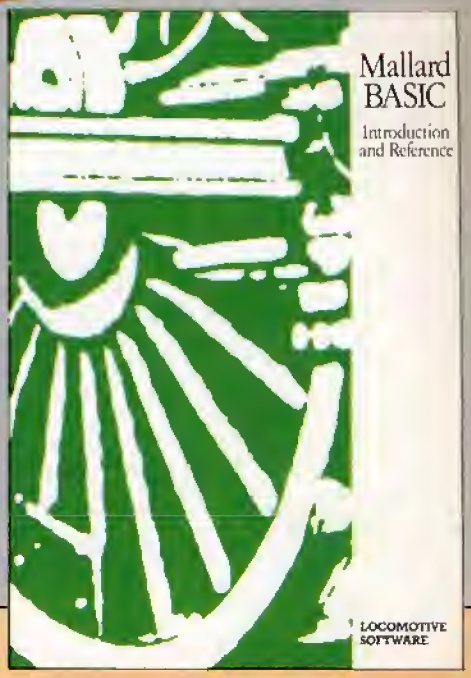
Your PCW system disc includes Mallard BASIC, the excellent version of the programming language BASIC written by Locomotive Software. The only trouble is there's no proper documentation for it with the machine (unless you were a very early purchaser of the 8256).

But now you can develop your programming ability with the aid of the latest version of the official Locomotive manual, an excellent, well-presented book running to over 400 pages.

It covers all commands available in Mallard BASIC in full detail, backed up with numerous examples and sample listings. Any differences relevant to the different PCW models are pointed out in the text. The new version also includes a much expanded tutorial section intended to teach BASIC programming from scratch. There is also full coverage given to the GSX graphics commands and the Jetsam file storage system.

If you want to use your PCW for more than just word-processing, this book can open the door.

Oh, and because there will be numerous bits you'll want to return to quickly, we're throwing in a free set of 8000 Plus highlighter pens so that you can mark key passages! An excellent buy.



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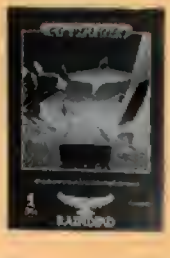

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Let's face it, computers don't like dust. Over a period of time it can make them very ill indeed: keyboards stick, disk drives become less reliable, printer mechanisms clog up.

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The specially-commissioned 8000 Plus covers are made from high-quality, anti-static nylon fabric. The sets for the 8000 series machines are coloured a soft grey with smart red piping for the monitor and printer covers. For the 9512, the covers are ivory piped with brown. Both sets include the 8000 Plus logo printed on the keyboard cover.

It all adds up to a good argument for a cover up.

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A neat way of keeping your discs organised.

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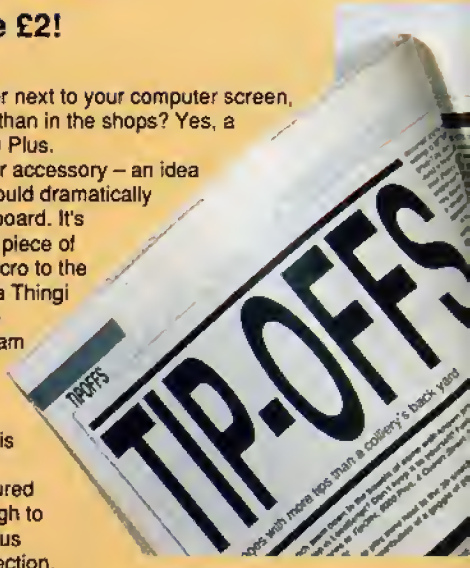
What's white, dangles paper next to your computer screen, and costs two pounds less than in the shops? Yes, a Thingi bought through 8000 Plus.

This remarkable computer accessory – an idea so simple it's ingenious – could dramatically ease your hours at the keyboard. It's basically a cleverly-shaped piece of plastic that attaches via Velcro to the top of your micro. But with a Thingi on your PCW you can have documents, letters or program listings clipped right next to the screen in perfect reading position.Any task involving copying off paper is thereby made much easier and faster. In fact, the coloured clip supplied is sturdy enough to support an issue of 8000 Plus open, say, at the Listings section.



The Thingi comes in two versions one for positioning to the left of the screen, the other to the right – the Velcro attachment allows easy readjustment or temporary removal.

A sensible, cost-effective add-on for your PCW.

HOW TO ORDER

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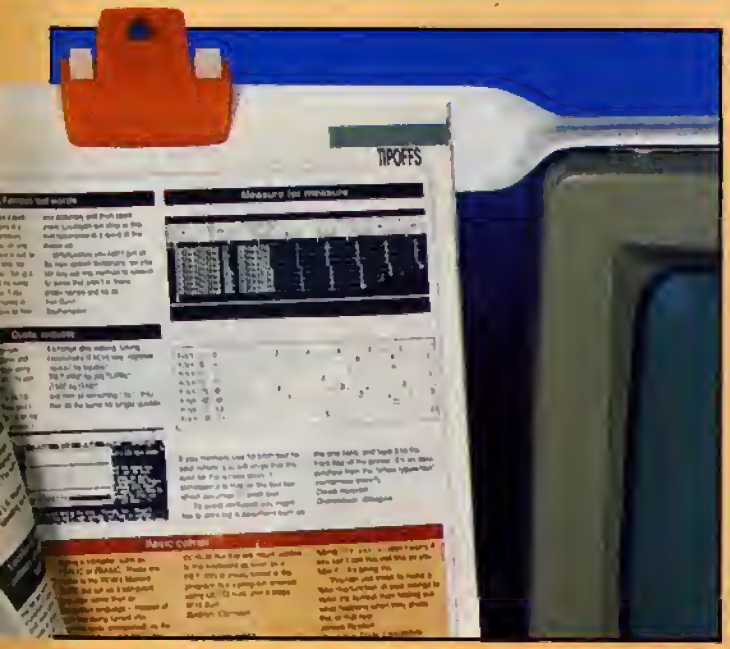
We're offering a set of three different-coloured 8000 Plus-stamped pens in a clear plastic wallet for just £1.50. They're high-quality and long-lasting. A good way of focussing attention on things that matter.



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- THREE blank Amstrad 3-inch disks (suitable for any PCW, drive A or B).
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POSTSCRIPT

Droves of diverse dispatches dissected and displayed by a dogged Ed.

The 9512 revolution is starting to pick up now, although the majority of the 8000 Plus postbag is still merrily dot-matrixed. This month's topics range from black marketeering to alcohol abuse – who says that computer magazines don't debate the wider issues of modern society?

If you feel moved to put finger to keyboard, send your thoughts on life to *PostScript, 8000 Plus, 4 Queen Street, Bath BA1 1EJ.*

Ripping yarn

I am very concerned about the quality of ribbons now supplied by Amstrad for the PCW 8526/8512 printers.

Over the past few weeks I have had to purchase a replacement, having found that re-inking of the original ribbon by a well known supplier failed to give me a good job in that all I got was over-inked ribbons which smudged the paper and blurred the print.

The new ribbon appeared to be a very thin plastic backed strip. It began to jam in the case and suddenly a double or triple loop of ribbon would appear and the whole lot would drop into the printer, so that I had to stop and rewind it into the case before I could recommence printing.

I returned the ribbon as faulty to Dixons, my local supplier, who replaced it with another one. The same happened to this ribbon and after a week I again returned it for replacement.

The same happened with the third ribbon. Later in the week while again printing a long file (I am printing a book of 250 pages, in chapters of approximately six to eight pages) I left the printer to print by itself. On my return I found that this time there was nothing printed because the ribbon had broken in half apparently after jamming just at the join.

I am pleased to say that again Dixons replaced the faulty ribbon, but suggested that I also complain to Amstrad, who supplied the ribbons, to see if this was a general complaint, and ask what could be done about it. This I have done and am now awaiting a reply. Might I add that I had no problems with the old type ribbons supplied and which gave exceptionally good service.

Edward Bedingfeld
Maidenhead, Berks

● *A few months ago Amstrad introduced a 'carbon film' ribbon as an alternative to the traditional inked fabric variety. You obviously have one of these carbon film ones, which in theory gives crisper print. Presumably the carbon film ones have been a success, since Amstrad have now stopped supplying the fabric type altogether, which is why Dixons no longer stock them.*

If you don't like the carbon film type, all is not lost since there are third party (ie. non-Amstrad branded) fabric ribbons available for the PCW. Pelikan are one of the biggest European ribbon manufacturers, and they make a suitable one. Ribbons for the PCW carry the standard international group number 2741FN. Any good stationer will be able to get Pelikan ribbons for you.

All clear

73's in amateur radio parlance means 'Good wishes', and 'es gud dx' means means 'Hope you have many long distance radio contacts'. I know because I too am an amateur radio fan, class 'A' like your other correspondent, M.J. Pratt.

Charles Winston
Congleton, Cheshire

● *Well then, 73's 2U2*

Double trouble

"Trouble at t'shops" there may be (Keywords, November), but I think you've got Trouble in t'post.

As a long-standing subscriber I am continually aggrieved to find the issue on sale in shops several days before mine arrives in the post. The problem is that 8000 Plus is so good that I usually have to buy a copy when I see it so end up spending twice as much as I need to!

Please can you get the copies in the post sooner?

Alec Veer
Glasgow

● *Because we have so many subscribers (over 6,000) we don't actually post the magazines ourselves but contract it out. Briefly, the timings are these: the subscribers' copies are delivered to the mailing company (in Bristol) on a Thursday. These are posted out the next day. The issue does not go on sale until the following Thursday, which allows six days for the Post Office to do its stuff. In some areas the issue may appear in shops a day or two early, but that is a local distribution matter.*

We can't post copies out first class because the Post Office won't take first class bulk mailings – each month's 8000 Plus batch weighs almost 1½ tonnes! Statistically, out of 6,000 copies posted some are bound to get delayed each month. If your copy is regularly late then it is probably your local sorting office at fault.

Come in, Z88

On the strength of your review of the Sinclair (oops) Cambridge Z88 I rushed to my local Dixons and bought their one and only model together with a comms lead and 128K RAM. I use it principally for library work and writing away from my PCW and find that so far it lives up to my expectations and your review and I forecast a good future for this machine.

I have transferred a large number of files from the Z88 to the PCW without any loss of data. There is however one problem that I am experiencing which is at the PCW end of the operation. Despite the fact that there is over 100K of space on the disc I frequently get a disc error message "NO DATA BLOCK" and have to transfer files to LocoScript to enable the CP/M disc to accept more transferred files. This error message occurs whether the file is 1k or 8k; there seems to be no reason for it and I am finding it somewhat frustrating having to change disc several times to transfer relatively little information. What I am I doing wrong?

This letter was written on the Z88 and transferred successfully!!

A Adams
Manningtree, Essex

● *It sounds as though you could be trying to store your transferred files on a disc that you have also used for LocoScript documents. When you say there is '100k free', presumably you mean that LocoScript tells you there is 100k free. It is lying to you! Because of the way LocoScript stores its Limbo files, CP/M may think that the disc is full (this month's CP/M article on pages 25/26 explains why). The simplest solution is to format a new disc specially for use with CP/M and file transfers, and don't try to mix LocoScript and CP/M files on the same disc.*

Two's company

I gazed longingly at the PCW 9512 in Dixons the other day. "Can I?" I said to my wife, mentally deciding there and then I would, anyway.

Wheel of fortune

Could I be the first PCW 9512 owner out of your postbag?

Having patiently waited several months for the launch of the PCW 9512, to my delight I was able to make my purchase on 23/9/87 thanks to Dixons in Bridgwater.

Very impressed I was too, although hours after setting up the machine I decided that the manual supplied was completely useless in its book form and promptly tore out all the pages (one by one!) and divided it between three ring binders. The end result is definitely easier to work with.

That over and done with I wasted the next day trying to operate the printer. In sheer desperation I referred to the manual (I could have saved myself a great deal of embarrassment if I had read it first!) to discover that I hadn't set it up to use continuous paper. That rectified, it wasn't too long before everything fell in its place.

I am well pleased with my purchase and get a real buzz when the printer is in operation, the print quality is marvellous and at the moment I can do nothing but praise the machine.

Who knows as a regular reader of 8000 Plus this could be the first of many letters of correspondence to yourselves.

Liz Davidge
Bridgwater

● *You weren't the first 9512 owner out of the postbag, but since you were the first to adhere to the letter of the challenge and provide a photo, you win the extravagant luxury of some spare daisywheels. Oh, but if you do write again, please don't use the Script 12 wheel we sent – it's a horrible typeface!*

"You've got one already, you don't need another one" she said, and dragged me off to Tesco's

She's right, of course, but I *want* one. And when I get it, can I:

1) In any way use the printer of my existing (upgraded, 2 drives, etc.) 8256 in addition to the nice Daisywheel supplied, or do I have to buy a separate dot-matrix for graphics?

2) Take the "B" drive out of my current machine, and install it in the 9512 – I know that the colour is black, and aesthetically it'll look silly, but will it work?

If I hide the 8256 and put the new one in its place, do you think my wife'll notice? Just for the record, she's got two irons, but I don't press the point.

Chris Kaley
West Drayton, Middlesex

● *You can't physically connect the 8000-type dot matrix printer to the 9512, although since the B-drive on the 8000 machines is the same disc type as the 9512 disc drives you can simply pop your 9512 disc into the 8512 B-drive and print the files on the 8512.*

Although I haven't actually looked inside the 9512, I'm assured that the wiring for the B-drive is all there, so you can re-instal your 8512 B-drive in the 9512. This does mean that you won't be able to read 9512 discs on your remaining 8000 A-drive though, so you the answer to your first question becomes 'no'. Swings and roundabouts, I'm afraid.

Cream of database soup

Whilst you are all having your 10 o'clock break for coffee and fruit and nut chocolate, may I take up a little of your time to mention one of your advertisers.

I recently rang Campbell Systems to enquire if Masterfile 8000 would do the filing, invoice records and cross referencing I require. I found them most helpful and, having ordered the product, I received it within 3 days. Although computers are not second nature to me, I found the manual very helpful and the product excellent. Full marks!!

J. Walker
Nottingham

Pirate hunter

I am seeking a program which will make it impossible to copy discs – have you published such a listing, or would you think it possible for a reader adept at programming to devise one?

Peter Houchin
Bridgwater, Somerset

● *The 'uncopyable disc' is one of those dreams like perpetual motion – you can get pretty close, but never quite there. If any of our readers have any ideas, we'd be pleased to publish them. Mind you, a really unbreakable copy protection system would be worth a fortune commercially.*

In the meantime, you can protect BASIC programs by saving them with the command `SAVE "filename",P`. *After this, they can be copied and run normally, but not altered, so any copyright notice could not be removed (real hackers know ways round this though). Don't forget to keep an unprotected working copy of the program for yourself!*

[STOP] and go

Having been given an Amstrad 8512 by my family last Christmas I set about learning BASIC and grappling with 'Jetsam'. Eventually, I arrived at a very worthwhile program to quote for Fitted Kitchens in our shop.

However, we sometimes accidentally hit the [STOP] key when striking the No. 1 key. The computer then leaps out of the program into the listing, thus all our totals and variables are lost and upon returning to the program we have to start again from the beginning.

Do you or any of your readers know of a way to disable the [STOP] key, or make it work only in conjunction with another? Amstrad have been unable to help me.

Jack Burbage
Tavistock Kitchens, Maidenhead

● *If you do accidentally break out of a program, typing* `CONT` *will allow you to continue again. Alternatively, if you include a line at the start of the program saying* `OPTION RUN` *then the [STOP] key will be disabled.*

Wrong address?

About the dreaded missing address mark. Your reply in Issue 13 to Geoffrey C. Bland – and to other sufferers in the past – makes me wonder whether you have ever actually used an 8512.

The problem only occurs outside LocoScript (which has inbuilt remedial measures) when Double Density discs are mixed with Single Density discs. If you stick an SD disc into drive B immediately after using a DD, you will get the "Track 1, sector 0 missing address mark" message. If you do the opposite (use a DD immediately after an SD), the bottom line of the screen will scream "Track 1, sector 0 no data".

When using application programs, this crude system message is usually translated, e.g. as "disc fail" or "disc missing" or "No data".

The reason is nothing to do with faulty discs as you told Mr Bland, nor is it necessary to use a disc repair program to overcome the difficulty. It is simply because CP/M needs *resetting* on each disc change. It can do without resetting when discs of the same format are used, but not when formats are mixed.

To reset, you bash the [STOP] key (in most programs) or [ALT]+C. However, if you forget to reset after a disc change and get the "Retry-Ignore-Cancel" message or some translation of it, type "I" for "Ignore" and the disc will normally be accepted and the directory will amazingly reveal its contents.

Roger Greaves
Paris

● *There is something in what you say, although this situation was only one of the many that Mr. Bland said he had disc trouble with. Your [STOP] key solution is certainly the first thing to try when a disc seems troublesome, although advising people to press [STOP] in the middle of programs seems an unwise step, since in many cases it will do just this – stop the program.*

Vicarious sins

I find opposition to honest education about alcohol by (a) those who do not want their comfortable social drinking conventions disturbed, (b) by vested interests, and (c) by some radio and television producers and those magazines and newspapers which have an irresponsible attitude, suggesting that it is clever or funny to drink. It should be said plainly and frequently that alcohol is a drug. A drug which has immediate effects. In the short term inducing irresponsibility and reducing skills, judgments and reaction time; in the long term of course ill health.

Of recent years the press have adopted the phrase "drunken driving" in reporting all drink drive cases. This suggests a driver visibly intoxicated; the truth is that a driver who has taken any alcohol whatsoever is unfit to drive.

Another phrase now being encouraged is "alcohol abuse" suggesting that moderate drinking is safe.

Alcohol is a dangerous addictive drug, a brain anaesthetic, in the smallest doses immediately affecting skills, reaction time, physical and moral judgments; inducing irresponsibility, resulting in depression; and progressively damaging heart, liver, brain, pancreas and fat tissue leading to strokes, high blood pressure, infertility and loss of sexuality, general illness and premature death.

There is not a single system of the body that is immune to the effects of alcohol. The only abuse of alcohol is drinking it.

Please be more responsible in your articles.

Rev. R.W. Clements
Gorey, Jersey

● *Using computers is a pretty addictive hobby, and now that you mention it many of the symptoms sound similar too!*

Off the wall

The LocoScript 2 wallchart is a disaster! The only option open to you is to make abject and grovelling apology and reprint it legibly.

I am a regular subscriber and am in general well pleased with the magazine. In particular I found the LocoScript 1 wallchart very useful and legible, and had been looking forward to the inevitable publication of a LocoScript 2 wallchart. The type size is at least half of the previous and much of the text is totally unreadable.

It really is so incredibly bad, in a magazine of normally good quality, that I find it almost unbelievable.

Roger T. Beeby
Leicester

● *It is true that the print was much smaller than on our previous chart, mainly because LocoScript 2 has many more menus that Loco 1. The printing on some copies seems worse than others, so maybe you were particularly unfortunate. Our apologies – you could try taking the pages to a photocopy shop and having them enlarged. We do have plans to reprint the chart as a full-size poster in the near future.*

Staple diet

Struck me as being about time I wrong to your esteemed journal, not to say assorted nice things about it but put in an important request.

Although as a rule I agree with innovations and the forward march of progress there is a certainly development in the world of magazines which is causing a great deal of concern amongst a number of us. Now, in all fairness your organ is not guilty of this crime – yet – but as with the rise of the likes of McDonalds and the Blessed Margaret it it quite possible that this insidious, creeping canker upon the fabric of society will in time make its way to the West Country.

Thus it is my solemn duty to warn you of this danger and humbly request that you and your staff do everything possible to prevent this plague from overwhelming 8000 Plus. I am of course talking about the march of the dreaded gunge binding machines on so many mags around today. You know the thing, glossy news-print stuck into a spine which falls to pieces after one read. Not very good if you want to keep the things to refer back to. So now my plea from the heart: *PLEASE CONTINUE USING STAPLES!!!*

N.K. Bell
Milton Keynes

In the BASIC corner

I have just read the Basic Corner in TipOffs of your November issue.

Tip 1 is good advice. Use integers wherever possible. Furthermore, avoid double length arithmetic where single length will do!

Tip 2 is potentially misleading. There is a tiny difference between processing a variable and processing a constant, but nowhere near that in the example given. The example is:

```
10 FOR i%=1 TO 1000:a=3.1415
   926535*3.1415926535:NEXT
```

compared to:

```
10 b=3.1415926535
20 FOR i%=1 TO 1000:a=b*b:
   NEXT
```

The second runs more than three times as fast as the first. The reason for this not that in the first the values in the multiplication are constants, while in the second they are variables. The reason is that in the first Mallard is doing double length arithmetic, while in the second it is doing single length arithmetic. This is because Mallard treats any constant which is quoted to more than seven significant digits are double length. The assignment to b takes the double length value and rounds it down to single length. If you type in the first program and LIST it out you will see:

```
10 FOR i=1 TO 1000:a=3.14159
   26535#*3.1415926535#:NEXT
```

where the # indicates the value is double length. Where constants have seven or less digits there is very, very little difference in speed.

```
10 FOR i% TO 1000:a=3.14159*
   3.14159:NEXT
```

will run in much the same time as the loop with b*b (but not as accurately).

Tips 3 and 4 may produce faster programs, but I am not convinced that the difference is measurable. Some BASIC implementations perform a search of the symbol table for each variable each time it is used, so that arranging for the commonly used symbols to appear early in the symbol table will help. Some implementations search for

Seeing the light

Up until this summer I had been churning out political and hobby magazines on a rapidly deteriorating electric typewriter which I would then laboriously, after typing out various drafts, retype into narrow columns, photoreduce on a copier and paste up with photos etc for a master for an offset litho. Well, after the nth breakdown of the typewriter I was persuaded to get an Amstrad. I had already thought about this but the dot matrix printer had always dissuaded me.

When I heard about the 9512 I thought this was great and started buying all the magazines I could find so that when it came out I would be as clued up as possible. I also started a levy on contributors to help pay for the thing. Like no doubt many others of your correspondents I have to say I know nothing about computers, nor, really, do I want to know. No matter, your review answered some questions that the two other 'reviews' I had seen hadn't even thought of asking.

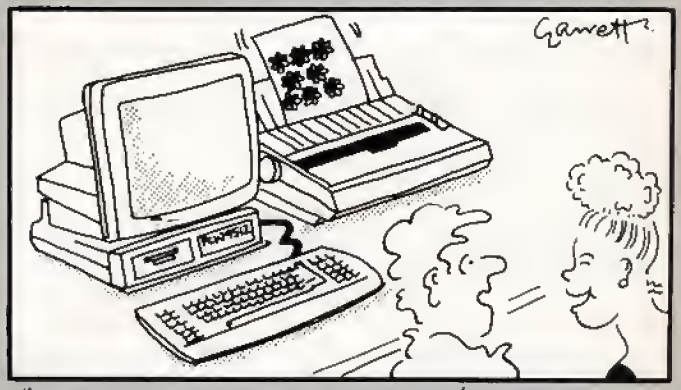
Now a couple of comments. As I have said I have read all four now of the PCW magazines and yours is by far, and I mean far, and away the best of them.

Your biggest immediate bonus is the Good Software File. This is worth the cost of the magazine alone. I'm astonished that none of your rivals has yet realised this and copied it. Hopefully you will now be indicating in each review whether the package is useable on the 9512 so as to attract the many new users to 8000 Plus. Whatever else was in this issue the middle page was stupendous. Having just spent hours going through the 9512 manual to find out whether the 'total pages' I had incorrectly entered last night in a document might be found and amended, so as to stop giving me page 3 of 4 in what was a five page document and, of course the ultimate page 5 of 4, your plan was just what I had been saying to myself was needed as part of the manual/tutorial.

Can you explain why one salesman said that I had to use DD2 discs while the other said that CF2s would work but would collapse more often? At another shop I was told that CF2s are DD2s which have failed the test, whatever that is.

Kenneth Clark
Aberdeen

● *Flattery will get you everywhere. Amstrad used to sell two types of disc: CF-2 and CF-2DD, the DD version supposedly being a higher quality version for the 8512 double density (DD) B-drive, hence the 9512 disc drives. In fact, Amstrad admitted way back in mid-1986 that the two types were identical apart from the colour of the label put on them, and they dropped the costlier DD type altogether. Therefore, on official approval, the CF2s will work fine with your 9512. Any DD discs still on sale are either not Amsoft-branded discs or old stock. Buy them if it makes you feel happier, but it makes no difference.*



"GREAT NEW MACHINE – HAVEN'T GOT THE HANG OF THE PRINTER YET, THOUGH"

line numbers each time they are used, and some search from the beginning of the program every time. None of this is true of Mallard BASIC. When Mallard first comes upon a reference to a variable or a line number it does perform a search, but leaves enough information so that the next execution of that reference can avoid the search.

In the case of variables Mallard has a modest indexing system to improve the performance of the initial search. In the case of line numbers Mallard will search from the beginning of the program if the destination lies before the current line, otherwise it searches forwards from the current line.

I will sell you a complete LocoScript 2 for £19.95. If you paid £30 for these tips I would say you were overcharged!

G.M.C. Hall
Locomotive Software, Dorking

● *Thanks for the clarifications; obviously Mallard is more sophisticated that we thought. Still, any readers who have to live with BASIC on vastly inferior computers can still benefit from the tips.*

We'll gladly pay £19.95 for LocoScript 2 – provided of course that includes the publication rights. I am sure we could license the rights back to you for a modestly huge sum.

PCW upgrades?

AERE Harwell have just installed their new CRAY-2 supercomputer. The RAM has a two billion byte capacity and the computer can perform 1,700 million calculations each second. There are 240,000 integrated circuits involved and the waste heat generated by all this high speed work is, wait for it, 195 kilowatts. No they don't open the windows to keep cool, they pump 200 gallons of fluorocarbon through the circuits and thence to two 100kW heat exchangers.

The installation is valued at £13,000,000. Now if Alan Sugar could only make enough of them...!

Jim French
Falmouth, Cornwall

Genealogy in action

I was very interested to read David Hawgood's *Planting the Family Tree* in October's Issue. I find PAF to be a very useful and powerful series of integral programs.

Its manual must be one of the very best to be found for any type of program for use with the PCW – both in clarity and quality. To criticise PAF for not being able to produce family trees is unreasonable; in my experience, whilst a family tree may look frightfully impressive, I have yet to see one which is even slightly comprehensible to anyone's Great Aunt Maud.

PAF, however, is far from being ideal when entering large numbers of individuals at any one time. The reason for this is that the serious user needs to make time-consuming switches between its Personal Researcher (names, relationships and dates etc)., Notes (occupations etc), Research Data Filer (as-yet unrelated people etc) and back to Personal Researcher. This switching about has to take place with every individual entered and it is both boring and time consuming.

I therefore use PAF in addition to Sagesoft's Retrieve database program. For the latter, I have designed each record to hold 31 fields which allows for all the necessary genealogical information to be entered in full – without having to resort to any non-standard abbreviations.

Judging by the letters which I receive almost daily from people using other programs, there does not appear to be a better combination of tools for use with the PCW8512 than PAF, Retrieve and LocoScript 2.

J. Ian Todd
Lelant, Cornwall

Free market economy

Having recently returned from Seville, I'm just dropping in a note to say there is a very colourful story to be had there. Each Sunday a market day is held and anything from burnt out valves to Nazi daggers and authentic Roman coins dug out from the major monuments can be bought.

But outstanding are the stalls set out alongside the lemon and garlic vendors where pirate copies of all the latest programs can be bought from 7-12 year old gypsy boys who are apparently fully briefed on such items as LocoScript 2, HitchHikers etc. Amstrad are particularly popular in Spain. The programs are sold with photocopied manuals, and the price comes to around £15 to £20, or less for regulars.

I myself saw at least seven stalls set up selling programmes for Amstrad and Spectrum. All this is apparently of no interest to the police who equally ignore the drugs and prostitution which feature in this bizarre market.

Dominique Jan Searle
Gibraltar

Gen on Genny

As an enthusiastic family historian it was marvellous to see the popularity of the hobby recognised by the article *Planting the Family Tree* in the October issue.

Though I haven't used Personal Ancestral File, I do have the other genealogical program mentioned, Genny from DCS Software, and suggest that this deserved more than the passing reference it received. As the writer said, this is very simple to use, and does not involve disc swapping. It has lots of facilities, such as browsing through the records, displaying any person (even multiple matches if you give imprecise information), searching for places, occupations etc., alphabetical listout, family group displays, descent and birth brief charts, male/female line trace back to the earliest known ancestor etc. "soundlike" people or places.

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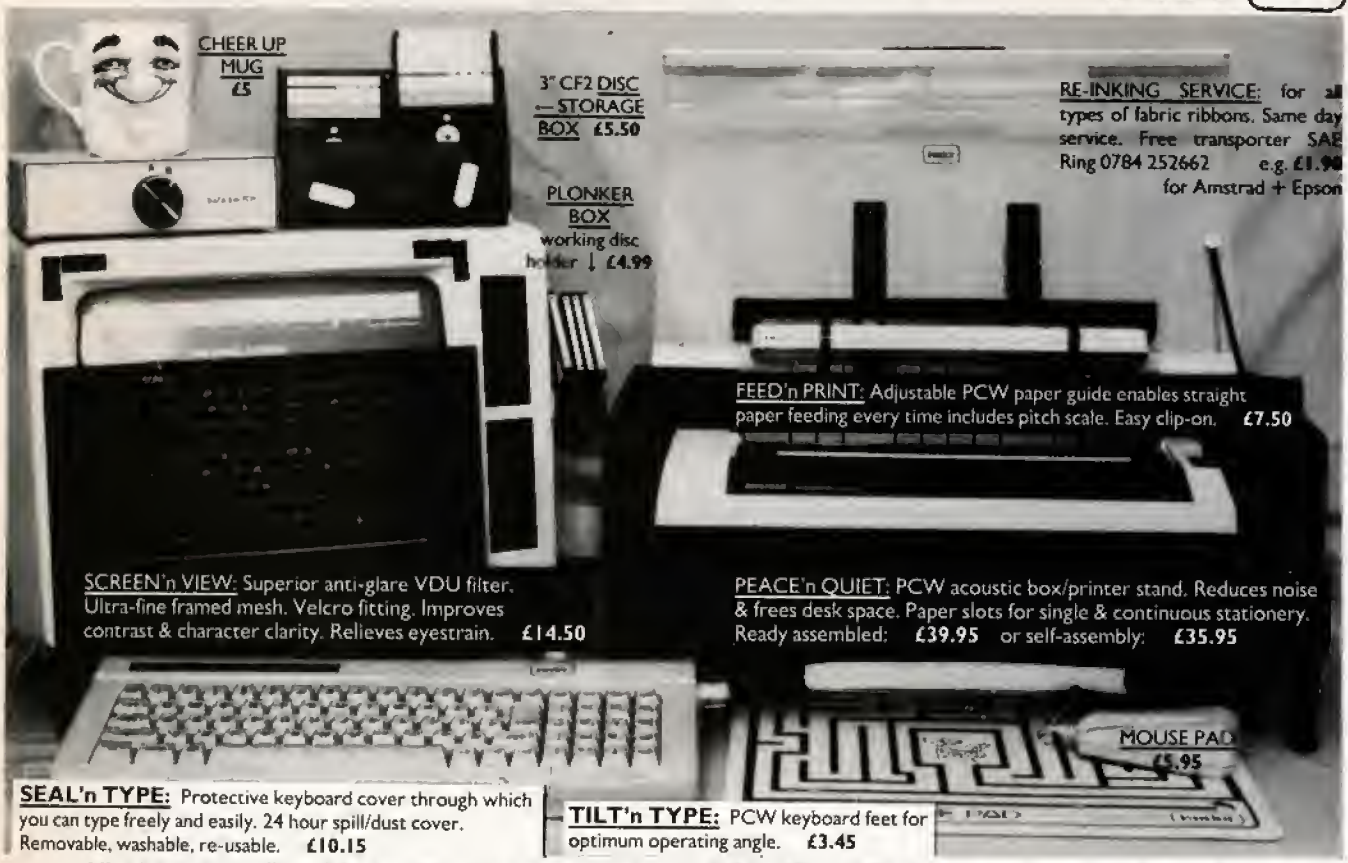

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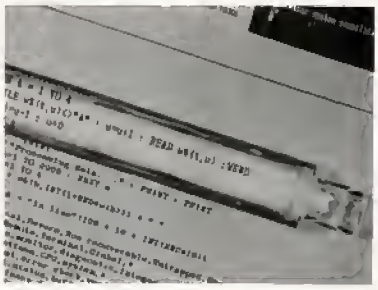

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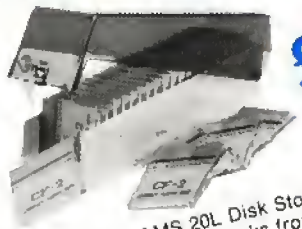

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